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Bibliography.

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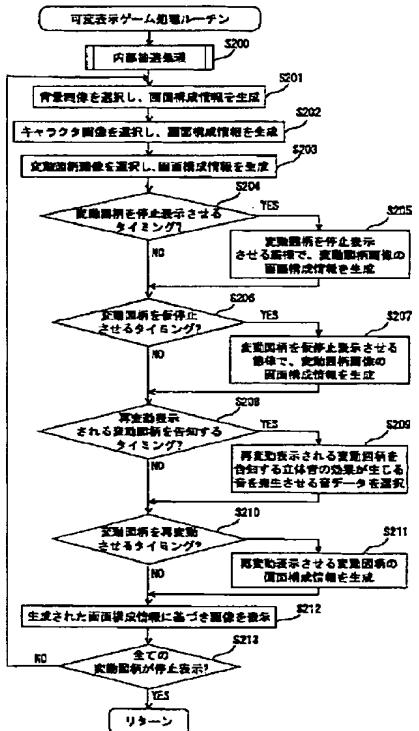
Summary.

(57) [Abstract]

[Technical problem] Raise the degree of expectation about the whereabouts of a game, and offer the game machine which can aim at fast improvement in interest.

[Means for Solution] It has a display and a loudspeaker and is a loudspeaker. In case it is a game machine possible in outputting the sound which the effect of a binaural sound makes, a temporary halt is once carried out after a change indication of two or more change patterns is given, and it is continuously indicated by re-change, before the above-mentioned re-change display is performed, it notifies [whether a re-change indication of which change pattern is given, and] to a game person by the sound are beforehand generated in the effect of the above-mentioned binaural sound — the game machine characterized by things

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CLAIMS

[Claim(s)]

[Claim 1] The identification information picture field which displays the identification information picture which consists of two or more change patterns by which it is prepared in a game board, and a change indication of each is given, and it may be

indicated by halt to predetermined timing. The production picture field which displays a production picture. In case it is the game machine which it had in the above, a temporary halt is once carried out after a change indication of two or more aforementioned change patterns is given, and it is continuously indicated by re-change, before the aforementioned re-change display is performed, it carries out whether a re-change indication of which change pattern is given by the sound are beforehand generated in the effect of the aforementioned binaural sound, and notifying as the feature.

[Claim 2] The game machine carry out whether a re-change indication of which change pattern is given by the sound are beforehand generated in the effect of the aforementioned binaural sound before the aforementioned re-change display is performed, in case it is the game machine carry out providing the following as the feature, a temporary halt once carries out after a change indication of two or more aforementioned change patterns is given, and it is continuously indicated by re-change, and notifying as the feature. It is prepared in a game board and the game situation developed on the game board concerned is embraced. suitably The display as which the screen picture which consists of a picture which combined a dynamic image, a static picture image, or these is displayed, It has the loudspeaker which outputs the sound according to the game situation, and the control section which transmits transmission of the electronic data to the aforementioned display, and the correspondence number to the aforementioned loudspeaker at least. by the aforementioned loudspeaker it is possible to output the sound which the effect of a binaural sound makes, and the aforementioned screen picture displays the identification information picture by which a change indication of each is given and it may be indicated by halt to predetermined timing -- an identification information picture field The production picture field which displays a production picture.

[Claim 3] the sound which the effect of the aforementioned binaural sound makes is sound which generates a virtual source, and before the aforementioned re-change display is performed, it notifies of the position of the change pattern by which it is beforehand indicated by re-change by generating the aforementioned virtual source -- a game machine according to claim 1 or 2

[Claim 4] The aforementioned loudspeaker is a game machine given in any 1 of the claims 1-3 which are parametric loudspeakers.

[Claim 5] the production expression method of carrying out whether a re-change indication of which change pattern being given by the sound are beforehand generated in the effect of the aforementioned binaural sound before the aforementioned re-change display is performed, in case it is the production expression method of a game machine of carrying out providing the following as the feature, a temporary halt once carries out after a change indication of two or more aforementioned change patterns is given, and it is continuously indicated by re-change, and notifying as the feature and of being a game machine It is prepared in a game board and the game situation developed on the game board concerned is

embraced. suitably The display as which the screen picture which consists of a picture which combined a dynamic image, a static picture image, or these is displayed, It is the production expression method of the loudspeaker which outputs the sound according to the game situation, and the game machine equipped with the control section which transmits transmission of the electronic data to the aforementioned display, and the correspondence number to the aforementioned loudspeaker at least. by and the aforementioned loudspeaker while it is possible to output the sound which the effect of a binaural sound makes, the aforementioned screen picture displays the identification information picture by which it is indicated by change and a halt indication of each may be given to predetermined timing — an identification information picture field The production picture field which displays a production picture.

[Claim 6] The server which it is the server to which the sound according to the game situation is made to output, and can perform control to which the sound which the effect of a binaural sound makes to each aforementioned terminal is made to output while displaying the game machine picture which is characterized by providing the following, and which shows a game machine to each terminal. The identification information picture field which displays the identification information picture which consists of two or more change patterns in which it is indicated by change and a halt indication of each may be given to predetermined timing according to the situation of the game performed in the aforementioned terminal. The production picture field which displays a production picture.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the production expression method and server of game machines, such as pachinko game

equipment, and a game machine.

[0002]

[Description of the Prior Art] Since the game person who plays a pachinko game is not bored, in order to make the game state grasp, pachinko game equipment is equipped with the display which has CRT, a liquid crystal display monitor, etc. In order to excite the interest over a game person's game, while a change indication of this change pattern is usually given in this display in the identification information picture field in which the identification information picture which consists of a change pattern which has two or more identification information which consists of a numeric value etc. is displayed, production expression which displays background images, such as an animation which has fixed narrativeness in the production picture field in which a production picture is displayed, is performed. Generally, the voice which the sound which is in the middle of expansion of a tale, and is made, a character, etc. generate is tintured with importance, so that it will become high, if the story nature becomes high in the animation which has such narrativeness. For this reason, the device made into the tale which has presence more is made by making such sound output from the loudspeaker in which it was prepared by the game machine.

[0003] Moreover, with such pachinko game equipment, it will usually be in the so-called great success state where a dividend advantageous to a game person is obtained, with the combination of the pattern of the change pattern by which it was indicated by halt in the identification information picture field. For this reason, in the display of pachinko game equipment, it displays, where two or more change patterns by which it is indicated by change are stopped, and after making a game person think that the combination of the pattern of a change pattern was decided by him, production which indicates a part or all of a change pattern by change again is also performed. In addition, if such production is performed, it will usually become easy to generate the usual great success state which does not change the probability of great success, and the so-called probability-changing state where the probability of great success goes up. Therefore, while swelling a breast to expectation as isn't the game considered that the game person decided in the state of the blank in a great success state or the game considered to have decided in the state of the usual great success will be in the so-called probability-changing state, interest will be increasingly aroused by such production to a game.

[0004] In such production, further, in case a part or all of the above-mentioned change pattern is again indicated by change, production of sounding a certain music and sound effect collectively is also performed. According to such a production method, the hope whether isn't the game considered that the game person decided in the state of the blank with the above-mentioned music or the sound effect in a great success state, or the game considered to have decided in the state of the usual great success will be in the so-called probability-changing state will rise more, and the interest over a game will increase further.

[0005]

[Problem(s) to be Solved by the Invention] however, when a halt indication of two or more change patterns is given, a halt display decides as it is -- or it was difficult to judge whether it is indicated by re-change in many cases, and in order to know whether it will be indicated by re-change, it always had to continue gazing at a change pattern, the game person was tired, and the case where the volition which continues a game was lost was Moreover, a change indication of which change pattern is again given among two or more stopped change patterns It cannot know until a change indication of a part or all of a change pattern that was displayed in the state where it stopped is actually given again. Since the very moving moment that a change indication of a part or all of a change pattern that was considered to have become a halt display is given again would be overlooked, admiration could not be raised excitedly, but the game became insipid, and there were a hope and a case where the pleasure of a game was fully unenjoyable.

[0006] this invention is made in view of the technical problem mentioned above. the purpose Since the change pattern by which it is indicated by re-change can be expected, it is necessary not to continue gazing at the change pattern by which it was indicated by halt. Consequently, since a game can be performed observing the change pattern by which can enjoy a game over a long time and it is indicated by re-change without sensing tiredness Big impression of the moment that a re-change indication of two or more change patterns in which it was thought that 1 ** became a halt display is given can be obtained. When the degree of expectation about the whereabouts of a game and the degree of excitement can be raised and a game changes into a great success state, a game person's feeling of fullness and feeling of achievement are raised, and it is in offering the production expression method and server of a game machine and a game machine which can aim at fast improvement in interest.

[0007]

[Means for Solving the Problem] It carries out whether a re-change indication of which change pattern is given by the sound which the effect of the aforementioned binaural sound makes beforehand before the above-mentioned re-change display is performed, in case it is continuously carried out [after a change indication of two or more change patterns is given] a temporary halt once and indicated by re-change in this invention in order to attain the above purposes, and notifying as the feature.

[0008] More specifically, this invention offers the following.

(1) The identification information picture field which displays the identification information picture which consists of two or more change patterns by which it is prepared in a game board, and a change indication of each is given, and it may be indicated by halt to predetermined timing, It has the display as which the screen picture which consists of a production picture field which displays a production picture is displayed, and the loudspeaker which outputs the sound according to the game situation. by the above-mentioned loudspeaker After a change indication of

the change pattern which is the game machine which can output the sound which the effect of a binaural sound makes, and is the above-mentioned plurality is given, a temporary halt is once carried out. Then, in case it is indicated by re-change, before the above-mentioned re-change display is performed, it is characterized by notifying of a re-change indication of which change pattern is given with the sound which the effect of the above-mentioned binaural sound makes beforehand.

[0009] before a re-change indication of two or more change patterns which once carried out a temporary halt is given according to invention of (1), it can notify [whether a re-change indication of which change pattern is given, and] using unique and new methods, such as notifying to a game person that sound can be heard from the direction where the change pattern to which it is indicated [sound / which the effect of a binaural sound makes] by re-change, for example has been arranged Therefore, a game person can enjoy a game over a long time, without not continuing gazing at the change pattern by which it was indicated by halt, consequently sensing tiredness, since the change pattern by which it is indicated by re-change can be expected.

[0010] Moreover, since a game can be performed observing the change pattern by which it is indicated by re-change, Big impression of the moment that a re-change indication of two or more change patterns in which it was thought that 1 ** became a halt display is given can be obtained. When the degree of expectation about the whereabouts of a game and the degree of excitement can be raised and a game changes into a great success state, a game person's feeling of fullness and feeling of achievement can be raised, and fast improvement in interest can be aimed at.

[0011] In addition, in this invention, as when carrying out a temporary halt of the change pattern, when it separates from it in the above-mentioned reach state when carrying out a temporary halt of the change pattern in the state of a blank and it carries out a temporary halt for the so-called reach state in the state before being in a reach state, without passing, the case where a temporary halt of the change pattern is carried out in the state of great success etc. can be mentioned, for example.

[0012] this invention offers further the following.

It is prepared in a game board and the game situation developed on the game board concerned is embraced. (2) Suitably The display as which the screen picture which consists of a picture which combined a dynamic image, a static picture image, or these is displayed, It has the loudspeaker which outputs the sound according to the game situation, and the control section which transmits transmission of the electronic data to the above-mentioned display, and the correspondence number to the above-mentioned loudspeaker at least. by the above-mentioned loudspeaker It is possible to output the sound which the effect of a binaural sound makes. and the above-mentioned screen picture The identification information picture field which displays the identification information picture by which it is indicated by change and a halt indication of each may be given to predetermined timing, In case it is a game

machine including the production picture field which displays a production picture, a temporary halt is once carried out after a change indication of two or more above-mentioned change patterns is given, and it is continuously indicated by re-change, before the above-mentioned re-change display is performed, by the sound which the effect of the aforementioned binaural sound makes beforehand It is characterized by notifying of a re-change indication of which change pattern is given.

[0013] before a re-change indication of two or more change patterns which once carried out a temporary halt is given according to invention of (2), it can notify [whether a re-change indication of which change pattern is given, and] using unique and new methods, such as notifying to a game person that sound can be heard from the direction where the change pattern to which it is indicated [sound / which the effect of a binaural sound makes] by re-change, for example has been arranged Therefore, a game person can enjoy a game over a long time, without not continuing gazing at the change pattern by which it was indicated by halt, consequently sensing tiredness, since the change pattern by which it is indicated by re-change can be expected.

[0014] Moreover, since a game can be performed observing the change pattern by which it is indicated by re-change Big impression of the moment that a re-change indication of two or more change patterns in which it was thought that 1 ** became a halt display is given can be obtained. When the degree of expectation about the whereabouts of a game and the degree of excitement can be raised and a game changes into a great success state, a game person's feeling of fullness and feeling of achievement can be raised, and fast improvement in interest can be aimed at.

[0015] this invention offers further the following.

(3) the sound which is the above (1) or a game machine given in (2), and the effect of the above-mentioned binaural sound makes is sound which generates a virtual source, and before the above-mentioned re-change display is performed, a re-change indication of it is beforehand given by generating the aforementioned virtual source -- it is characterized by notifying of the position of a change pattern

[0016] Before a re-change indication of two or more change patterns which once carried out a temporary halt is given according to invention of (3), a re-change indication of which change pattern is given by generating a virtual source So that the sound which the effect of the above-mentioned binaural sound makes from the direction where the change pattern by which it is indicated by re-change has been arranged can be heard for example, set up or It can set up so that the sound which the effect of the above-mentioned binaural sound makes may move in the direction in which the change pattern by which it is indicated by re-change has been arranged and it may be audible. Consequently, while a game person can enjoy a game over a long time, without sensing tiredness, two or more change patterns in which it was thought that 1 ** became a halt display can obtain big impression of the moment of being indicated by re-change.

[0017] Moreover, presence can be immersed more in the fun of increase and a game

by generating sound as if the character was actually moving for example, case [whose character to which the change pattern was given is / like moving in the inside of water etc.].

[0018] this invention offers further the following.

(4) The above (1) It is invention given in any 1 of – (3), and the above-mentioned loudspeaker is characterized by being a parametric loudspeaker.

[0019] As mentioned above, before a re-change indication of two or more change patterns which once carried out a temporary halt is given, by this invention, it notifies of a re-change indication of which change pattern is given beforehand with the sound which the effect of a binaural sound makes. therefore, in the game machine of 1, if it is notified of a re-change indication of which change pattern is given before a re-change indication of the change pattern which is the plurality which carried out [sound / which the effect of a binaural sound makes] a temporary halt is given A re-change indication of two or more change patterns which once carried out a temporary halt is given, and not only the game person that is performing the game with the game machine of the above 1 but a surrounding game person can know a bird clapper in the great success state etc. in the near future. However, when it does not change into a great success state etc. after that, the game person who is performing the game with the game machine of the above 1 having that pointed out from the circumference, and carrying out a shameful thought is also considered.

[0020] However, since according to invention of (4) sound to tell a game person can be put and emitted to a strong directive ultrasonic wave by the above-mentioned parametric loudspeaker and sound can be centralized on a predetermined part like a spotlight, it can prevent that the sound outputted from the game machine of the above 1 will be heard by other game persons. In the game machine of the above 1, with consequently, the sound which the effect of a binaural sound makes Before a re-change indication of two or more change patterns which once carried out a temporary halt is given, even if it is notified of a re-change indication of which change pattern is given, other game persons who are in the circumference of the game machine of the above 1 since the sound which the effect of the above-mentioned binaural sound makes cannot be heard, in the game machine of the above 1, it does not know beforehand that a re-change indication of the change pattern which is the plurality which once carried out a temporary halt will be given Therefore, before a re-change indication of two or more change patterns which once carried out a temporary halt is given, even if it is the case where it does not change into a great success state etc. after being notified of a re-change indication of which change pattern is given, the game person who is performing the game with the game machine of the above 1 can concentrate to a game in comfort, without carrying out a shameful thought.

[0021] this invention offers further the following.

It is prepared in a game board and the game situation developed on the game board

concerned is embraced. (5) Suitably The display as which the screen picture which consists of a picture which combined a dynamic image, a static picture image, or these is displayed, It is the production expression method of the loudspeaker which outputs the sound according to the game situation, and the game machine equipped with the control section which transmits transmission of the electronic data to the above-mentioned display, and the correspondence number to the above-mentioned loudspeaker at least. by and the above-mentioned loudspeaker While it is possible to output the sound which the effect of a binaural sound makes, the above-mentioned screen picture The identification information picture field which displays the identification information picture by which it is indicated by change and a halt indication of each may be given to predetermined timing, It is the production expression method of a game machine including the production picture field which displays a production picture. In case a temporary halt is once carried out and it is continuously indicated by re-change, after a change indication of two or more above-mentioned change patterns is given, before the above-mentioned re-change display is performed, it carries out a re-change indication of which change pattern is given by the sound are beforehand generated in the effect of the above-mentioned binaural sound, and notifying as the feature.

[0022] before a re-change indication of two or more change patterns which once carried out a temporary halt is given according to invention of (5), it can notify [a re-change indication of which change pattern is given, and] using unique and new methods, such as notifying to a game person that sound can be heard from the direction where the change pattern to which it is indicated [sound / which the effect of a binaural sound makes] by re-change, for example has been arranged Therefore, it becomes possible to offer the production expression method of a game machine that a game can be enjoyed over a long time, without not continuing gazing at the change pattern by which it was indicated by halt, consequently sensing tiredness, since a game person can expect the change pattern by which it is indicated by re-change.

[0023] Moreover, since a game can be performed observing the change pattern by which it is indicated by re-change Big impression of the moment that a re-change indication of two or more change patterns in which it was thought that 1 ** became a halt display is given can be obtained. When the degree of expectation about the whereabouts of a game and the degree of excitement can be raised and a game changes into a great success state, a game person's feeling of fullness and feeling of achievement are raised, and it becomes possible to offer the production expression method of a game machine that fast improvement in interest can be aimed at.

[0024] this invention offers further the following.

(6) While displaying the game machine picture which shows a game machine to each terminal, it is the server to which the sound according to the game situation is made to output. And it is the server which can perform control to which the sound which the effect of a binaural sound makes to each above-mentioned terminal is made to

output. The identification information picture field which displays the identification information picture which consists of two or more change patterns in which it is indicated by change and a halt indication of each may be given to predetermined timing according to the situation of the game performed in the above-mentioned terminal, While performing control on which a screen picture including the production picture field which displays a production picture is displayed to a terminal In case a temporary halt is once carried out and it is continuously indicated by re-change, after a change indication of two or more above-mentioned change patterns is given, before the above-mentioned re-change display is performed, it carries out a re-change indication of which change pattern is given by the sound are beforehand generated in the effect of the above-mentioned binaural sound, and notifying as the feature.

[0025] before a re-change indication of two or more change patterns which once carried out a temporary halt is given according to invention of (6), it can notify [whether a re-change indication of which change pattern is given, and] using unique and new methods, such as notifying to a game person that sound can be heard from the direction where the change pattern to which it is indicated [sound / which the effect of a binaural sound makes] by re-change, for example has been arranged Therefore, it becomes possible to offer the server which can enjoy a game over a long time, without not continuing gazing at the change pattern by which it was indicated by halt, consequently sensing tiredness, since a game person can expect the change pattern by which it is indicated by re-change.

[0026] Moreover, since a game can be performed observing the change pattern by which it is indicated by re-change Big impression of the moment that a re-change indication of two or more change patterns in which it was thought that 1 ** became a halt display is given can be obtained. When the degree of expectation about the whereabouts of a game and the degree of excitement can be raised and a game changes into a great success state, a game person's feeling of fullness and feeling of achievement are raised, and it becomes possible to offer the server which can aim at fast improvement in interest.

[0027] In a [definition-of-term etc. book] specification, "identification information" means identifiable information by visual senses, such as a character, a sign, a pattern, or a pattern. The case where "a change display" changes from the pattern "7" which is one identification information when identification information changes one by one to the pattern "8" which are other identification information, In the case while one identification information had been displayed in the viewing area which can display identification information besides in the case of changing to other patterns "*" from the pattern "9", so that the identification information may move and may be displayed For example, it is a concept including the case where it moves one pattern "7" being displayed in a viewing area etc.

[0028] "The sound which the effect of a binaural sound makes" means the sound in which depth and a breadth are impressed to a game person. the sound which the

effect of such a binaural sound makes can obtain by outputting sound based on the correspondence number which performed processing, after performing the processing to which the correlation coefficient which is the sound pressure of the sound in the entrance of both the game person's ears changes, the processing which add the correspondence number which generates reverberation sound as opposed to the sound data used as the correspondence number which generates this sound, and this correspondence number In addition, in this specification, we suppose that sound data mean the electronic data memorized by the storages (for example, ROM etc.) with which the game machine etc. was equipped, and a correspondence number decides to say the electrical signal inputted into a loudspeaker.

[0029] Moreover, although it is possible to output the sound which the effect of a binaural sound usually makes by using two pieces or three loudspeakers or more (circuit) in case sound is outputted based on the correspondence number which performed processing which was mentioned above, or sound data Also in the game machine of this invention, and the terminal (henceforth a terminal etc.) controlled by the server of this invention, it is the same, and the sound which the effect of a binaural sound makes can be outputted by using two pieces or three loudspeakers or more (circuit). Moreover, it is not necessary to necessarily use two pieces or three loudspeakers or more, and you may be one piece in this invention. Moreover, it is not especially limited about the position in which the above-mentioned loudspeaker is prepared. About the position and the number of the above-mentioned loudspeaker, it is possible to set up suitably so that the effect of a binaural sound may fully be acquired with the sound outputted from a loudspeaker.

[0030] moreover, in the game machine of this invention, only when notifying of a re-change indication of which change pattern is given before a re-change indication of two or more change patterns which did not necessarily need to output the sound which the effect of a binaural sound always makes, for example, once carried out a temporary halt is given, the sound which the effect of the above-mentioned binaural sound makes is outputted -- it is good also as things

[0031] The state where the pattern of all change patterns stopped "a temporary halt" in a predetermined combination after a change indication of two or more change patterns was given is said, and a change indication of two or more stopped a part or all of a change pattern is given again after this.

[0032] It says that a change indication of two or more a part or all of a change pattern that carried out [above-mentioned] a temporary halt of "the re-change display" is given again.

[0033] The above-mentioned loudspeaker produced in a game person's feeling means the sound source of the imagination which exists in a different position with the sound to which a "virtual source" is outputted from the loudspeaker with which the game machine etc. was equipped. Therefore, it is sensed that the above-mentioned virtual source back generated in spite of having outputted the loudspeaker with which the game machine which a game person has in a transverse

plane when the sound which generates a virtual source by the loudspeaker with which the game machine etc. was equipped when the game person was located in transverse planes, such as a game machine, is outputted and a virtual source is generated behind a game person was equipped to sound to sound is outputted. In this case, with a game person's feeling, it means that the above-mentioned virtual source had occurred in a different position from the above-mentioned loudspeaker. Hereafter, the above-mentioned virtual source is explained.

[0034] The acoustic wave from a loudspeaker results in the eardrum of both the game person's ears in response to an operation of the transfer system of places, such as an amusement center and space, in which for example, a game person is, and the transfer system by reflection of a game person's head, a concha, a shoulder, etc., diffraction, and resonance. The transfer function of these transfer systems, i.e., the transfer function from a sound source to external auditory meatus, is called head sound transfer function. The above-mentioned head sound transfer function can be acquired with measuring methods, such as an M sequences method and the cross-spectrum method.

[0035] The above-mentioned virtual source can be processed in sound data or a correspondence number, and can make it generate using the head sound transfer function acquired according to the physical relationship of for example, a game person and the loudspeaker with which the game machine etc. was equipped, physical relationship with the virtual source which makes it generate with a game person, etc. by outputting the sound based on these sound data or a correspondence number. It is possible to perform such processing by DSP (Digital Signal Processor) which is a processing unit, for example, it can realize by using an FIR (Finite-duration Impulse Response) filter and filters, such as IIR (Infinite-duration Impulse Response).

[0036] Furthermore, the above-mentioned virtual source will be explained in full detail using drawing 1 –3. Drawing 1 is explanatory drawing shown as compared with the state where the sound outputted by the virtual source to which a listener exists the state where explanatory drawing about a virtual source, i.e., a listener, is hearing the sound outputted by two loudspeakers arranged ahead of this listener in this listener's right rear side is heard.

[0037] First, it is assumed that Listener A is hearing the sound outputted by the virtual source 210 which exists in Listener's A right rear side. The frequency characteristic of the sound outputted by the virtual source 210 at this time If HL and the head sound transfer function from a virtual source 210 to Listener's A right ear (are set [for example, / sound pressure level, frequency, etc.]) to HR for VS and the head sound transfer function from a virtual source 210 to Listener's A left ear The frequency characteristic EL of the sound in near the external ear of Listener's A left ear and the frequency characteristic ER of the sound in near the external ear of a right ear can be expressed with (following 1) and following (2) formula, respectively (refer to drawing 1).

$$EL=VSxHL \dots (1)$$

$$ER=VSxHR \dots (2)$$

[0038] Next, the case where the sound outputted by the loudspeaker 201 (201a, 201b) is being heard is considered. In addition, loudspeaker 201a is located in the left-hand side ahead of Listener A, and loudspeaker 201b is located in the right-hand side ahead of Listener A. LS and the head sound transfer function from loudspeaker 201a to Listener's A left ear for the frequency characteristic of the sound outputted by loudspeaker 201a LGL, The head sound transfer function from loudspeaker 201b to Listener's A right ear is set to LGR. If RGL and the head sound transfer function from loudspeaker 201b to Listener's A right ear are set to RGR for RS and the head sound transfer function from loudspeaker 201b to Listener's A left ear, the frequency characteristic of the sound outputted by loudspeaker 201b The frequency characteristic EL of the sound in near the external ear of Listener's A left ear and the frequency characteristic ER of the sound in near the external ear of a right ear can be expressed with (following 3) and following (4) formula, respectively (refer to drawing 1).

$$EL=LSxLGL+RSxRGL \dots (3)$$

$$ER=LSxLGR+RSxRGR \dots (4)$$

[0039] (Following 5) and following (6) formula can be obtained about the frequency characteristic LS of the sound outputted by loudspeaker 201a by the above-mentioned (1) – (4) formula, and the frequency characteristic RS of the sound outputted by loudspeaker 201b (refer to drawing 1).

$$LS=VSx(RGLxHR-RGRxHL)/XG \dots (5)$$

$$RS=VSx(-LGLxHR+LGRxHL)/XG \dots (6)$$

(However, XG=RGLxLGR-RGRxLGL)

[0040] Moreover, as shown in drawing 1 , when a loudspeaker 201 (201a, 201b) sees from Listener A and is arranged at the bilateral symmetry, let the head sound transfer function, i.e., the head sound transfer function LGL and the head sound transfer function RGR, from a loudspeaker 201 to Listener's A ear of the nearer one be the same head sound transfer function. The same is said of the head sound transfer function to the ear of the one where Listener A is distant from a loudspeaker 201. Therefore, if GN and the head sound transfer function to the ear of the one where Listener A is distant from a loudspeaker 201 are set to GF, the above (5) and (6) formulas can also show the head sound transfer function from a loudspeaker 201 to Listener's A ear of the nearer one like (following 7) and following (8) formula, respectively.

$$LS=VSx(GFxHR-GNxHL)/(GF2-GN2) \dots (7)$$

$$RS=VSx(-GNxHR+GFxHL)/(GF2-GN2) \dots (8)$$

[0041] Namely, the frequency characteristic VS of the sound outputted by the virtual source 210 is set up. The above (5) and processing using (6) formulas (the above (7) and (8) formulas) are performed to the correspondence number or sound data made to generate the sound of the frequency characteristic VS. The

correspondence number or sound data made to generate the sound of the frequency characteristics LS and RS is obtained, and it becomes possible to generate a virtual source 210 by outputting the sound based on the obtained correspondence number or sound data of the frequency characteristics LS and RS from loudspeaker 201a and loudspeaker 201b, respectively.

[0042] However, when a virtual source is generated by the method mentioned above, there is a possibility that a cross talk may occur in the sound which reaches from a left loudspeaker to a right ear, and the sound which reaches from a right loudspeaker to a left ear. When the above-mentioned cross talk occurs, a listener may memorize sense of incongruity in the position of a virtual source. Such a cross talk can suppress the generating by performing processing which negates the above-mentioned cross talk to the correspondence number which generates the sound outputted by the loudspeaker. Next, how to output the sound which generating of the above-mentioned cross talk is suppressed [sound] and generates a virtual source is explained.

[0043] Drawing 2 is explanatory drawing shown as compared with the state where the sound outputted by the virtual source to which a listener exists in this listener's right rear side in explanatory drawing about a virtual source, i.e., the state where the listener is hearing the sound outputted from headphone, is heard. The case where Listener A is hearing the sound outputted by headphone 301 (301a, 301b) is considered. In addition, headphone 301a is located in Listener's A left-hand side, and headphone 301b is located in Listener's A right-hand side. If the frequency characteristic of the sound outputted by LP and headphone 301b in the frequency characteristic of the sound outputted by headphone 301a is set to NB, the frequency characteristic EL of sound in near the external ear of Listener's A left ear and the frequency characteristic ER of the sound in a right ear can express RP and the head sound transfer function from headphone 301 (301a, 301b) to Listener's A ear with (following 9) and following (10) formula for it, respectively (refer to drawing 2).

$$EL=LP \times NB \dots (9)$$

$$ER=RP \times NB \dots (10)$$

[0044] (Following 11) and following (12) formula can be obtained about the frequency characteristic LP of the sound outputted by the above (1) and (2) formulas, and the above (9) and (10) formulas by headphone 301a, and the frequency characteristic RP of the sound outputted by headphone 301b (refer to drawing 2).

$$LP=VS \times HL/NB \dots (11)$$

$$RP=VS \times HR/NB \dots (12)$$

[0045] (Following 13) and following (14) formula can be obtained about the frequency characteristic LS of the sound outputted by the above (7) and (8) formulas, and the above (11) and (12) formulas by loudspeaker 201a, and the frequency characteristic RS of the sound outputted by loudspeaker 201b (refer to drawing 1 and drawing 2).

$$LS=[(NB/GN)/[1-(GF/GN)]] \times [LP - (GF/GN)]$$

xRP} ... (13)

$$RS = [(NB/GN) / \{1 - (GF/GN) 2\}] x [RP - (GF/GN)]$$

xLP} ... (14)

[0046] Thus, the frequency characteristic VS of the sound outputted by the virtual source 210 is set up. Processing using the above-mentioned (11) – (14) formula is performed to the correspondence number of the frequency characteristic VS. The correspondence number of the frequency characteristics LS and RS is obtained, and it becomes possible to generate a virtual source 210, without generating most cross talks by outputting the sound based on the correspondence number of the obtained frequency characteristics LS and RS from loudspeaker 201a and loudspeaker 201b, respectively. Drawing 3 is explanatory drawing in order to explain explanatory drawing about a virtual source, i.e., process in which processing mentioned above is performed.

[0047] The correspondence number or sound data (frequency characteristic : LP, RP) outputted by headphone 301 can be obtained by preparing beforehand the correspondence number or sound data used as the sound (frequency characteristic : VS) made to output by the virtual source 210, and processing this correspondence number using the filter 401 obtained by the above (11) and (12) formulas. Usually, this processing is called binaural conversion. Next, the correspondence number or sound data (frequency characteristic : LS, RS) made to generate the sound outputted by the loudspeaker 201 can be obtained by processing the obtained correspondence number or sound data (frequency characteristic : LP, RP) using the filters 402 and 403 obtained by the above (13) and (14) formulas.

[0048] Thus, while outputting the sound of the frequency characteristic LS by loudspeaker 201a based on the obtained correspondence number or sound data, Listener A senses that sound is outputted from the virtual source 210 generated in the right rear side, in spite of outputting sound from the loudspeaker 201 by outputting the sound of the frequency characteristic RS by loudspeaker 201b. In addition, what is necessary is just to prepare the filters 401–403 corresponding to the movement, in order to move the above-mentioned virtual source. moreover, change of the sound which reaches both the ears of the above-mentioned listener according to the movement in consideration of a listener's head moving a little etc. – – an amendment -- you may prepare the filter which can do things Furthermore, it is also possible to prepare the filter which can be made to generate two or more virtual sources by setting up the frequency characteristic of the virtual source which makes it generate in addition to virtual source 210 shown in drawing 1 or drawing 2 for example, and using the method and the same method as abbreviation of obtaining the above-mentioned (1) – (14) formula.

[0049] In this invention, you may decide to perform the above (5) and processing using (6) to the sound data memorized by the storages (for example, ROM etc.) of the game inside of a plane, or the correspondence number inputted into a loudspeaker, and may decide to perform processing using above-mentioned (11) –

(14). Moreover, you may store in the storages (for example, ROM etc.) of the game inside of a plane beforehand the sound data which performed these processings.

[0050] Moreover, as a loudspeaker which can be used in case a virtual source is generated by method which was mentioned above, a well-known loudspeaker, for example, a cone speaker, a horn loudspeaker, a dome loudspeaker, a capacitor loudspeaker, a ribbon type loudspeaker, an ion type loudspeaker, etc. can be mentioned conventionally.

[0051] A "parametric loudspeaker" is a loudspeaker which sound (acoustic wave of a audio range) to tell a game person is put and outputted [loudspeaker] to a strong directive ultrasonic wave, and centralizes sound on a predetermined part like a spotlight, and it is the loudspeaker which generates sound to tell a game person by carrying out self-detection of the outputted ultrasonic wave using the nonlinear interaction of an acoustic wave.

[0052] In addition, as for a loudspeaker, in the game machine of this invention, it is desirable that it is a parametric loudspeaker. It is because it can concentrate to a game in comfort, without carrying out a shameful thought even if it is the case where a great success state etc. does not occur, after a game person is notified of a re-change indication of which change pattern is given, before a re-change indication of the change pattern which is the plurality which once carried out [sound / which the effect of a binaural sound makes] a temporary halt was given, as mentioned above. Hereafter, the above-mentioned parametric loudspeaker is explained using drawing 4.

[0053] Drawing 4 (a) is explanatory drawing about a parametric loudspeaker, and drawing 4 (b) is drawing showing typically the frequency spectrum of the nonlinear interaction by the sine wave. Moreover, (c) is drawing showing typically the frequency spectrum of the nonlinear interaction by the amplitude modulation wave.

[0054] As shown in drawing 4 (a), the case where the ultrasonic wave of frequency f_1 and the ultrasonic wave (however, $f_2 > f_1$) of frequency f_2 which are a primary acoustic wave are outputted from the parametric loudspeaker 500 is considered.

The frequency spectrum which shows the nonlinear interaction of the sine waves in such a situation comes to be shown in drawing 4 (b). That is, when the ultrasonic wave of frequency f_1 and the ultrasonic wave of frequency f_2 which are a primary acoustic wave carry out nonlinear interference, the sound (chord) of the frequency (f_2+f_1) which is a secondary acoustic wave, and the sound (difference tone) of frequency (f_2-f_1) are generated (refer to drawing 4 (a) and (b)).

[0055] If the ultrasonic wave of frequency f_1 and the ultrasonic wave of frequency f_2 are outputted from the parametric loudspeaker 500, in a audio range, the sound of frequency (f_2-f_1) is generable, so that frequency (f_2-f_1) may turn into frequency of a audio range at this time. Moreover, like an ultrasonic wave, since directivity is strong, the sound of the frequency (f_2-f_1) generated as mentioned above becomes possible to centralize sound on a predetermined part like a spotlight. However, usually, as a parametric loudspeaker is shown in drawing 4 (a) and (b), the ultrasonic

wave of different frequency is hardly outputted and it outputs the amplitude modulation wave which is made to modulate the subcarrier of an ultrasonic wave by the modulating signal of a audio range, and is usually obtained.

[0056] Next, the case where an amplitude modulation wave is outputted from a parametric loudspeaker is explained using drawing 4 (c). Usually, the amplitude modulation wave (modulated wave) 501 which is made to modulate a subcarrier by the modulating signal and is obtained contains subcarrier 501a, top wave (upper sideband) 501b, and bottom wave (lower sideband) 501c, as shown in drawing 4 (c).

[0057] If this amplitude modulation wave 501 receives the nonlinear interaction of an acoustic wave, while subcarrier 501a and top wave 501b will carry out nonlinear interference, subcarrier 501a and bottom wave 501c carry out nonlinear interference. Consequently, the modulated wave 502 which is a secondary acoustic wave equivalent to the above-mentioned modulating signal is generable. That is, self-detection of the amplitude modulation wave 501 can be carried out using the nonlinear interaction of an acoustic wave. In this case, since the above-mentioned modulating signal is outputted as a modulated wave 502 which is a secondary acoustic wave as it is, if it chooses the correspondence number of the audio range used as voice, a sound effect, etc. as the above-mentioned modulating signal and chooses an ultrasonic wave as it at the above-mentioned subcarrier, it will become possible to centralize sound on a predetermined part like a spotlight.

[0058] In the game machine of this invention equipped with the parametric loudspeaker mentioned above, when the sound outputted by this parametric loudspeaker receives the nonlinear interaction of an acoustic wave, only in the part which a secondary acoustic wave generates, and the field to which this secondary acoustic wave is transmitted, a game person can hear the sound outputted by this parametric loudspeaker. At this time, the part which a secondary acoustic wave generates serves as a sound source of the imagination which exists in a different position from the above-mentioned parametric loudspeaker, ******, and a virtual source. In addition, it does in this way and, as for the virtual source which made it generate, it is possible by enabling it to change the sense of the above-mentioned parametric loudspeaker etc. to make it move.

[0059]

[Embodiments of the Invention] The example of this invention is explained based on a drawing. In addition, below is equipped with two loudspeakers (loudspeaker which is not a parametric loudspeaker), and suppose that the game machine of this invention which can output the sound which the effect of a binaural sound makes by this loudspeaker is explained. In addition, the above-mentioned game machine shall have memorized the sound data to which processing was beforehand performed by the method mentioned above. Of course, the game machine of this invention is not limited to such a game machine.

[0060] Drawing 5 is the front view showing the game machine of this invention typically. In addition, in the example explained below, the case where this invention is

applied to pachinko game equipment is shown as a suitable example of the game machine concerning this invention.

[0061] The discharge handle 26 and ** which were prepared in the right-hand side of the main part frame 12, the game board 14 included in the main part frame 12, the window frame 16 of the main part frame 12 prepared in the front face of the game board 14, the upper pan 20 and the lower pan 22 prepared in the front face of the main part frame 12 with the window frame 16 down side, and the lower pan 22 are arranged at pachinko game equipment 10.

[0062] Moreover, two or more obstacle nails (not shown) are driven into the front face of the game board 14. In addition, it does not consider as composition which drives in a nail, but the game board 14 is fabricated for a resin material, it is good also as composition implanted so that a metal rod-like structure may be projected in the game board 14 of this resin material at the front of the game board 14, and this invention can be applied also to pachinko game equipment 10 (party contest machine) which was mentioned above. In addition, in this specification, it is a concept also containing a party contest machine in pachinko game equipment 10.

[0063] Furthermore, the discharge handle 26 is formed free [rotation] to the main part frame 12, and the game person can advance the pachinko game by operating the discharge handle 26. The discharge motor 28 is formed in the background of the discharge handle 26. When rotation operation of the discharge handle 26 is done by the game person in the direction of a clockwise rotation, power is supplied to the discharge motor 28 and the game sphere stored by the upper pan 20 is discharged one by one by the game board 14.

[0064] The discharged game sphere is guided at the guide rail 30 prepared on the game board 14, moves to the upper part of the game board 14, and after that, changing the travelling direction by the collision with two or more obstacle nails mentioned above, the game board 14 goes caudad and it falls. Moreover, the loudspeaker 46 (46a, 46b) is arranged, and pachinko game equipment 10 is constituted by the lower pan 22 bottom so that the sound which the effect of a binaural sound makes can be outputted by the loudspeaker 46.

[0065] Drawing 6 is the expansion front view showing the game board 14 typically. In addition, the same sign was given to the component shown in drawing 5 mentioned above, and the corresponding component. Moreover, drawing 6 showed what was omitted about the obstacle nail mentioned above.

[0066] The display 32 which is the display which is mentioned later is formed in the center of abbreviation of the front face of the game board 14. Display 52 is formed in the center of the upper part of this display 32. This display 52 consists of for example, 7 segment drops, and an adjustable indication of the common pattern which is display information is given so that change and a halt may be repeated. The sphere passage detectors 55a and 55b are formed in the flank of right and left of display 32. This sphere passage detector 55a or 55b usually suspends the change display of a pattern, after the change display of a pattern is usually started and

predetermined carries out time progress in the display 52 mentioned above, when it detects that the game sphere passed through the near. Usually, a pattern is this information that consists of a number, a sign, etc., for example, are signs, such as numbers from "0" to "9", and "*." When a pattern usually turns into this predetermined pattern, "7", it stops and it is displayed, [for example,] Current is supplied to the solenoid 57 (not shown) for driving the movable pieces 58a and 58b prepared in the both sides of right and left of the starting mouth 44 mentioned later, the movable pieces 58a and 58b are driven so that a game sphere may tend to go into the starting mouth 44 and may become it, and the starting mouth 44 is made to be in an open state. In addition, when predetermined time passes after making the starting mouth 44 into an open state, a movable piece is driven, and a game sphere cannot enter easily and it is made to become by making the starting mouth 44 into a synizesis state.

[0067] Four hold lamps 34a-34d are formed in the both sides of right and left of the display 52 mentioned above. Furthermore, the general winning-a-prize mouth 50 is formed in the upper part of display 52. Moreover, the winning-a-prize mouth 38 of a game sphere is formed in the lower part of the game board 14. Near this winning-a-prize mouth 38, the shutter 40 is formed free [opening and closing]. When an adjustable display game changes into a great success state, a shutter 40 is driven by the solenoid 48 (not shown) so that it may be in an open state.

[0068] The general winning-a-prize mouths 54a and 54b are formed in the both sides of right and left of the display 32 mentioned above. Furthermore, the general winning-a-prize mouths 54c and 54d are formed in the both sides of right and left of the display 32 lower part. Moreover, the winning-a-prize mouths 56a and 56b are specially formed in the edge of right and left of the game board 14, and the winning-a-prize mouths 56c and 56d are specially formed in the both sides of right and left of the winning-a-prize mouth 38.

[0069] Moreover, the starting mouth 44 which has the sphere detection sensor 42 used as the opportunity which shifts to a change display state in the plurality which the adjustable display game mentioned later is started and is displayed on display 32, for example, the pattern which are three identification information, is formed. The winning-a-prize mouth 38 mentioned above, the starting mouth 44, the general winning-a-prize mouths 54a-54d, and when a game sphere wins specially a prize of the winning-a-prize mouths 56a-56d, it is made as [pay / the upper pan 20 / a number of game spheres beforehand set up according to the kind of winning-a-prize mouth].

[0070] The rolling flare-part material 60a and 60b for guiding the path of a game sphere in the predetermined direction is also formed in the both sides of right and left of display 32 further again. Moreover, the ornament lamps 36a and 36b are formed in the outside upper left-hand side and outside upper right-hand side of the game board 14.

[0071] In addition, even if the portion which displays the production picture later

mentioned in the display 32 mentioned above consists of a liquid crystal display panel, it may consist of the Braun tube. Moreover, in the game board 14 of the pachinko game equipment 10 which is a game machine, although it showed the case where it was prepared in the front center of abbreviation, if display 32 is a position which a game person can see, it is good in the example mentioned above, also as forming display 32 in the position of what of a game machine.

[0072] Furthermore, the thing equipped with the liquid crystal screen other than a pattern display means to display a pattern also in pachislot game equipment also exists, and such pachislot game equipment makes the game production screen same in the liquid crystal screen as pachinko game equipment display, and tends to raise idea nature in recent years. Therefore, suppose that this invention is applied also in the pachislot game equipment which has such a liquid crystal screen.

[0073] Drawing 7 is the block diagram showing the control circuit of the pachinko game equipment which is the example of this invention.

[0074] The discharge handle 26 mentioned above is connected to the interface-circuitry group 62 of a control circuit 60, and the interface-circuitry group 62 is connected to the input/output bus 64. After the angle signal which shows the rotation angle of the discharge handle 26 is changed into a predetermined signal by the interface-circuitry group 62, it is supplied to an input/output bus 64. The input/output bus 64 is made as [input / output and / a data signal or an address signal / by the central-process circuit (CPU is called hereafter) 66]. Moreover, the sphere detection sensor 42 is also connected to the interface-circuitry group 62 mentioned above, and when a game sphere passes the starting mouth 44, the sphere detection sensor 42 supplies a detecting signal to the interface-circuitry group 62. Furthermore, the sphere passage detector 55 is also connected to the interface-circuitry group 62, and the sphere passage detector 55 supplies a detecting signal to the interface-circuitry group 62, when it detects that the game sphere passed through the near.

[0075] ROM (read-only memory)68 and RAM (random access memory)70 are connected to the input/output bus 64 mentioned above. ROM68 memorizes the control program which controls the flow of the whole game of pachinko game equipment. Furthermore, in case an adjustable display game is performed in display 32, ROM68 memorizes the image data of a change display or the change pattern by which it is indicated by halt, the character image data which consists of a dynamic-body object displayed as a production screen, the background-image data which constitute the background of display 32, and animation image image data, and memorizes the initial data for performing a control program, the program which control the blink operation pattern of the ornament lamp 36.

[0076] ROM68 memorizes the sound data used as BGM, a sound effect, voice, etc. further. Before a re-change indication of two or more change patterns which once carried out a temporary halt is given, the sound data for notifying of a re-change indication of which change pattern is given beforehand are contained in the above-

mentioned sound data. In addition, the sound data which ROM68 memorizes may memorize the sound data which do not necessarily need to be sound data made to generate the sound which the effect of a binaural sound makes altogether, and are made to generate the sound which especially the effect of a binaural sound does not produce. Furthermore, as for the sound data made to generate the sound which the effect of the above-mentioned binaural sound makes, it is desirable that it is sound data used as the sound which generates a virtual source.

[0077] When indicating the pattern by change in display 32, in case the pattern image data mentioned above indicates by halt, it is used, and it contains the image data according to various display modes, for example, the expanded picture, the reduced picture, the picture which deformed. Moreover, the character image data and background-image data which consist of a dynamic body object mentioned above, and animation image image data are for displaying on display 32 by making into a screen picture a dynamic image, static picture images, or these pictures that were combined, as a game is directed. Furthermore, the character image data which consists of a dynamic body object mentioned above contains the image data corresponding to each of operation that operation of a character should be displayed.

[0078] Moreover, RAM70 memorizes the value of the flag used by the program mentioned above, or a variable. For example, the accumulation reach data, the number of accumulation change, and the number of times of accumulation great success which show the history of the result of an operation by new input data and new CPU66 or a game are memorized. In addition, if the above-mentioned reach means the thing in the state where two change patterns displayed the same pattern and it has stopped when there are for example, three change patterns, one pattern which remains displays the same pattern concerned and it stops, it will be becoming it a great success.

[0079] By calling and performing a predetermined program, CPU66 which is a control section performs data processing, and controls transmission and others by making into a correspondence number the character image data and background-image data which consist of a dynamic body object based on the result of this data processing, animation image image data, change pattern image data, and sound data. In addition, although not illustrated, DSP mentioned above decides to be contained in CPU66.

[0080] Moreover, CPU66 reads the image data of the change pattern which is the identification information mentioned above, and it controls, or it controls it so that a halt indication of the mutual combination state of the pattern which are two or more identification information is given to predetermined timing in display 32 so that a change indication of the pattern is given in display 32.

[0081] Furthermore, the interface-circuitry group 72 is also connected to the input/output bus 64. Display 32 and 52, a loudspeaker 46 (46a, 46b), the discharge motor 28, solenoids 48 and 52, the hold lamp 34, and the ornament lamp 36 are connected to the interface-circuitry group 72, and the interface-circuitry group 72 supplies a driving signal and drive power to it that each of the equipment mentioned

above according to the result of data processing in CPU66 should be controlled.

[0082] The screen picture of the display 32 which is a display consists of a production picture as which the discernment picture as which a change pattern is displayed, and a production screen are displayed, and is displayed as one picture by piling up these two pictures by control of CPU66, and compounding.

[0083] Thus, especially, by making a production picture into a background, the scene which piles up and compounds two or more pictures, for example, a pattern picture and a production picture, and on which a pattern is changed can be directed, and a colorful display gestalt becomes possible at a twist.

[0084] It is for carrying out the opening-and-closing drive of the **** shutter 40 mentioned above, and a solenoid 48 shows the number of times from which the combination of the pattern displayed on display 32 became effective, and the ornament lamp 36 blinks or turns on the hold lamp 34 for it to show a game person that, when it becomes a time of a game being becoming it a great success, and reach.

[0085] A control section consists of CPUs66 mentioned above, a display consists of display 32, and a game machine consists of pachinko game equipment 10.

[0086] The variable used for below in CPU66 which had started pachinko game equipment 10 and was mentioned above shall be initialized by the predetermined value, and shall carry out regular operation. Moreover, although explanation is omitted about sound other than the sound which notifies of a re-change indication of which change pattern is given beforehand before a re-change indication of two or more change patterns which once carried out a temporary halt is given, suppose that BGM, a sound effect, voice, etc. are outputted suitably according to a game situation.

[0087] Drawing 8 is a flow chart which shows the sub routine which detects the game sphere performed in the control circuit 60 mentioned above. In addition, this sub routine is called and performed to predetermined timing from the control program which controls the pachinko game of the pachinko game equipment 10 currently performed beforehand.

[0088] First, it detects whether it is the no by which the game sphere went into the winning-a-prize mouth (Step S11). This winning-a-prize mouth is the general winning-a-prize mouth 50, 54a-54d, and the special winning-a-prize mouths 56a-56d in the example shown in drawing 6 mentioned above, for example. In Step S11, when it judges that the game sphere went into the winning-a-prize mouth, processing which pays out a number of game spheres beforehand defined according to the kind of winning-a-prize mouth is performed (Step S12).

[0089] Next, it judges whether the game sphere went into the starting mouth (Step S13). This starting is the starting mouth 44 in the example shown in drawing 6 mentioned above, for example. In this step S13, when it judges that the game sphere went into the starting mouth, the first adjustable display game mentioned later is performed (Step S14).

[0090] Furthermore, it judges whether the game sphere passed the sphere passage detector (Step S15). This sphere passage detector is the sphere passage detectors 55a and 55b in the example shown in drawing 6 mentioned above, for example.

[0091] In this step S15, when a sphere passage detector is judged that the game sphere passed, as mentioned above, processing which usually indicates the pattern by change in display 52 is performed (Step S16). In addition, as mentioned above, when are indicated by change and it becomes [at which the pattern usually stopped] a predetermined pattern, a game sphere tends to go into the starting mouth 44, and it is made to become it, as the movable pieces 58a and 58b are driven and it will be in an open state about the starting mouth 44.

[0092] Next, the adjustable display game in this invention is concretely explained using a drawing. Drawing 9 is a flow chart which shows the sub routine which performs adjustable display game processing called and performed in Step S14 mentioned above.

[0093] By calling this sub routine, the fixed screen currently displayed in display 32 is usually changed to a screen, and an adjustable display game is started. An adjustable display game is a game which imitated the game made in a slot machine here. After displaying two or more patterns which are two or more identification information on display 32 and displaying that the each is changed, When the combination of the pattern when these patterns displaying that it stops one by one to predetermined timing, and stopping all the patterns turns into a predetermined combination It is a game for shifting a pachinko game to a state advantageous to a game person, and is the game performed considering this change display and a halt display as one distance.

[0094] For example, as one group, these 12 patterns are displayed on display 32 one by one, and it is displayed that the pattern itself changes, displaying the pattern which consists of "1", "2", —, 12 numbers that consist of "12" that the pattern moves. For example, in display 32, after displaying that "1" of a pattern scrolls down to the upper shell of display 32, it displays that "2" of a pattern is scrolled from a top to the bottom, and it is displayed that "3" of a pattern is continuously scrolled to the bottom of an upper shell similarly. After displaying "from 1" to "12" of a pattern in such a mode, it displays that "1" of a pattern is scrolled again, and the same display is repeated successively. [of a pattern]

[0095] By displaying a pattern like a display 32 smell lever, while a pattern is scrolled from "2" to "3" from "1" to "2", a pattern will be displayed to change one by one to "12", and next, "1" will be displayed again. Thus, the mode which displays a pattern that the pattern itself changes one by one is called change display, moving the position of one pattern. Moreover, the mode which is made to stop a certain pattern and is displayed is called halt display, and the mode which is made to carry out a temporary halt of a certain pattern, and displays it is called temporary halt display.

[0096] In addition, the pattern displayed in case the pattern belonging to one group

is displayed on display 32 is good also as not being restricted only to one pattern belonging to a group, and displaying simultaneously plurality, for example, 2-3 patterns. For example, while indicating the pattern "5" by change at display 32, a part or the whole of a pattern "4" is indicated by change under the pattern "5", and it is good above a pattern "5" also as indicating a part or the whole of a pattern "6" by change. In addition, the group of the pattern mentioned above is a concept corresponding to the group of the pattern displayed on one reel used in a slot machine.

[0097] Furthermore, when an adjustable display game is performed in display 32, the pattern belonging to each of two or more groups is displayed. For example, when displaying each of the pattern belonging to three groups on a longitudinal direction, the pattern belonging to one group is displayed on the left-hand side of display 32, the pattern belonging to other groups is displayed in the center of display 32, and the pattern belonging to the remaining groups is displayed on the right-hand side of display 32.

[0098] Thus, by displaying the pattern which is identification information, two or more identification information will be displayed on the display 32 which is a display. For example, so that only one pattern in the pattern belonging to one group may always be displayed, when indicating by change, one pattern will be displayed on display 32 by three patterns, i.e., left-hand side, one pattern will be displayed in the center, and one pattern will be displayed on right-hand side. moreover — displaying the pattern which the number of the groups at the time of an adjustable display game being performed is not restricted to three, and belongs to two or more groups other than three on display 32 — also carrying out — it is good

[0099] As mentioned above, two or more patterns, i.e., two or more identification information, will be displayed on the display 32 which is a display by displaying a pattern in this way. Furthermore, when we decided to display that it is good also as displaying two or more patterns about the pattern belonging to one group as mentioned above, for example, the two patterns belonging to one group are simultaneously indicated by change and it displays about three groups, a change indication of a total of six patterns will be given at display 32.

[0100] When all the patterns by which it was indicated by change are indicated by halt to predetermined timing after indicating the pattern belonging to two or more groups by change, the combination of these patterns agrees about a predetermined combination, and it shifts to the state where a pachinko game becomes advantageous to a game person noting that an adjustable display game wins great success, when indicated by halt.

[0101] For example, when displaying the pattern belonging to three groups on display 32 When a halt indication of the pattern belonging to one group is given by "7" and a halt indication also of the pattern belonging to other groups and the pattern which it is indicated by halt by "7" and belongs to the remaining groups is given by "7" The combination of a pattern is combination "7"—"7 predetermined". — It agrees in "7",

and it shifts to the state where a pachinko game becomes advantageous to a game person noting that an adjustable display game wins great success. It is made easy to open wide the shutter 40 of the winning-a-prize mouth 38 which supplies current to the solenoid 48 mentioned above, and is prepared in the front face of the game board 14, and to go a game sphere into the winning-a-prize mouth 38, when it shifts to the state where it is becoming it a great success, and becomes advantageous to a game person.

[0102] Moreover, when this adjustable display game is performed, the production screen by the background image, the character picture, etc. is also displayed on display 32. In addition, the production screen which will be displayed on display 32 by the time a screen results when an adjustable display game is becoming it a great success after a change indication of the pattern which was mentioned above, and which an adjustable display game is started in display 32, and is displayed on display 32 is given is usually said.

[0103] Moreover, when the adjustable display game by which the fixed screen mentioned above is performed in display 32 is not performed but only the pachinko game is advancing in pachinko game equipment 10, and/or when the pachinko game is not advancing, the screen displayed on display 32 is said.

[0104] A start of the adjustable display game mentioned above performs internal lottery processing by data processing of CPU66 first (Step S200). It is the processing set beforehand the combination of the pattern when this internal lottery processing indicating by halt all the patterns that belong to two or more groups by which it was indicated by change, and deciding a pattern, and CPU 66 carries out processing with the change display of a pattern, and a halt display so that it may mention later, and a halt indication of the pattern may be given in the combination of the pattern defined by internal lottery processing.

[0105] Moreover, by the above-mentioned internal lottery processing, CPU66 performs processing which determines whether indicate the change pattern by re-change, and when it is determined that a change pattern will indicate by re-change, it carries out the processing which determines further in which change pattern a temporary halt is carried out.

[0106] Next, the screen configuration information of the selected background image is generated by RAM70 (Step S201). That is, after the above-mentioned internal lottery processing is performed, according to the result of internal lottery processing, the advance situation of an adjustable display game, etc., the control program which chooses a background image is called and performed from ROM68 by CPU66.

[0107] Next, the screen configuration information of the background image chosen by CPU66 based on the result by which it might perform is generated by RAM70 by CPU66 at any time. Especially as the above-mentioned background image, although not limited, as shown in drawing 10 and drawing 11 , the picture which shows the wall surface of a building, the picture which shows a battlefield are mentioned, for example. Such a picture is suitably chosen by CPU based on the advance situation

of an adjustable display game, and the result of the above-mentioned internal lottery processing.

[0108] Next, the screen configuration information of the character picture which consists of a selected animal object is generated by RAM70 (Step S202). That is, based on the execution result of the above-mentioned control program, the screen configuration information of the character picture chosen by CPU66 is generated by RAM70.

[0109] Movement can be given and displayed on a character picture by controlling so that the head position of a character picture shifts by predetermined movement magnitude with the period (frame span) of the fixed interval for every grade for 1 / 30 seconds at this time, for example, 60 1/seconds. In addition, about the picture which shows a character, it does not always necessarily need to be displayed on display.

[0110] When the picture which shows a battlefield is displayed as it is not limited especially as a character picture in this invention and is shown in drawing 11 as a background image for example, the picture which shows the tank putting up the flag of a pig and the tank putting up the flag of the pig which grew the mustache can be mentioned. In addition, the especially number of character pictures, i.e., the number of characters, may not be limited, it may be the singular number, and may be plural. It is possible to set up according to the tale developed in a production picture.

[0111] Subsequently, the screen configuration information of the change pattern which is identification information is generated by RAM70 by CPU66 based on the execution result of the above-mentioned control program (Step S203).

[0112] The screen configuration information of the picture used as each pattern which constitutes the above-mentioned change pattern It is based on the control program mentioned above. by CPU66 for example, 1 / 60 seconds, and the period (frame span) of the fixed interval for every 30-second grade The change display of a change pattern can be performed by controlling the picture which it is made to shift by predetermined movement magnitude, and serves as each change pattern in the head position of screen configuration information about the picture used as the change pattern which has the same identification information to generate one by one in predetermined sequence.

[0113] Furthermore, since the fluctuation velocity of a change pattern is controllable by adjusting a frame span, the head position of read-out of screen configuration information, etc., in a background image, it is also possible to smooth change of a change pattern and to aim at fusion for a background image and a change pattern according to the tale developed.

[0114] In addition, it is possible to also make ROM68 display that the configuration of this change pattern changes with time during a change display by making two or more image data used as a different configuration memorize, reading from CPU66 at any time, and transmitting to display 32 about the same change pattern.

[0115] Next, it judges whether it is the timing which indicates the change pattern by

halt (Step 204). That is, it judges whether it is the timing which indicates by halt the pattern which belongs to one group or two groups or more among plurality, for example, three groups. In addition, it means that a idle state is decided by giving a halt indication of the change pattern unlike the case of a temporary halt which carries out the following to the halt display in this case. When a change pattern is judged to be the timing which indicates by halt, a change pattern picture is chosen by CPU66 in the mode which indicates the change pattern by halt, and the screen configuration information of this change pattern picture is generated by RAM70 by it (Step S205). In addition, it is related for "indicating the change pattern by halt", and as mentioned above, not only when indicating the change pattern of one group by halt, but when indicating the change pattern of two groups by halt simultaneously or indicating all the change patterns by halt simultaneously, it shall contain.

[0116] In Step 204, when it is judged that it is not the timing which indicates the change pattern by halt, or when processing of Step 205 is performed next, it judges whether it is the timing which carries out a temporary halt of the change pattern (Step S206). It shall contain, not only when it is also related for "indicating the change pattern by temporary halt" and indicates the change pattern of one group by temporary halt, but when indicating the change pattern of two groups by temporary halt simultaneously or indicating all the change patterns by temporary halt simultaneously. The change pattern is indicated by halt or suppose that it explains in more detail later about the mode which indicates by temporary halt. When a change pattern is judged to be the timing which carries out a temporary halt next, the screen configuration information of the selected pattern which carries out a temporary halt is generated by RAM70 (Step 207). That is, based on the execution result of the above-mentioned control program, the screen configuration information of the pattern which was chosen by CPU66 and which carries out a temporary halt is generated by RAM70.

[0117] Moreover, a judgment whether it is the timing which carries out a temporary halt of the change pattern can be made by the means shown below. Namely, the production picture beforehand displayed in case a temporary halt of the change pattern is carried out When a frame number until this production picture is displayed, and the frame number which measures time etc. and was measured are displayed about (for example, a background image, a character picture), etc., Or when the measured time passes, in Step S206, it can carry out by making ROM68 memorize the control program judged to be the timing which carries out a temporary halt of the change pattern.

[0118] In addition, when not carrying out a temporary halt of the change pattern is determined by internal lottery processing in Step S200, in Step S206, it is judged that CPU66 is not the timing which carries out a temporary halt of the change pattern.

[0119] In Step S206, when it is judged that it is not the timing which carries out a temporary halt of the change pattern, it judges whether it is the timing which notifies

of the change pattern which performed processing of Step S207, and by which a case, next a re-change indication are given (Step S208). In addition, a judgment whether it is the timing which notifies of the change pattern by which it is indicated by re-change can be made by the means shown below. namely, about the production picture displayed in case it notifies of the change pattern by which it is indicated by re-change beforehand When a frame number after performing processing of Step S206 until this production picture is displayed, and the frame number which measures time etc. and was measured are displayed, Or when the measured time passes, in Step S208, it can carry out by making ROM68 memorize the control program judged to be the timing which notifies of the change pattern by which it is indicated by re-change.

[0120] In addition, when not carrying out a temporary halt of the change pattern is determined by internal lottery processing in Step S200, it is not necessary to judge that CPU66 is not necessarily the timing which notifies of the change pattern by which it is indicated by re-change in Step S206. Even if it is the case where not carrying out a temporary halt of the change pattern is determined, it is one good also as notifying of the change pattern by which it is indicated by re-change to the sound which the effect of a binaural sound makes. Even if it is the case where the sound which the effect of the binaural sound which notifies of the change pattern by which it is indicated by re-change by doing in this way makes is generated A re-change indication of the always stopped change pattern will not necessarily be given, and a game person is received. It becomes impossible to expect the whereabouts of a game simply consequently, and the degree of expectation about the whereabouts of a game can be raised, and when notified of the change pattern by which it is indicated by re-change, the excitement to a game can be raised. However, when the binaural sound which notifies of the change pattern by which it is indicated by re-change is generated, it is desirable to make high probability of re-fluctuating a change pattern. It is because the reliability at the time of generating the sound which the effect of a binaural sound makes will fall if it is not much alike and the probability is made low.

[0121] When it is judged that it is the timing which notifies of the change pattern by which it is indicated by re-change in Step S208, the sound data made to generate the sound which the effect of the binaural sound which notifies of the change pattern by which it is indicated by re-change makes are chosen (Step S209). That is, CPU66 chooses and reads the sound data used in order to notify of the above-mentioned change pattern by which it is indicated by re-change from the sound data memorized by ROM68. And a correspondence number is generated from these sound data, and it transmits to a loudspeaker. Consequently, the sound based on the above-mentioned sound data will be outputted by the loudspeaker.

[0122] When it is judged that it is not the timing which notifies of the change pattern by which it is indicated by re-change in Step S208 on the other hand, or when processing of Step S209 is performed next, it judges whether it is the timing which

indicates the change pattern by re-change (Step S210). In addition, a judgment whether it is the timing which indicates the change pattern by re-change can be made by the means shown below. namely, beforehand about a production picture just before indicating the change pattern by re-change When a frame number after performing processing of Step S208 until the above-mentioned production picture is displayed, and the frame number which measures time etc. and was measured are displayed, Or when the measured time passes, in Step S210, it can carry out by making ROM68 memorize the control program judged to be the timing which indicates the change pattern by re-change. In addition, when not carrying out a temporary halt of the change pattern is determined by internal lottery processing in Step S200, in Step S210, it is judged that CPU66 is not the timing which indicates the change pattern by re-change. Moreover, when it is determined at Step 206 that a change pattern is not temporary halt timing, in Step S210, it is judged that CPU66 is not the timing which indicates the change pattern by re-change.

[0123] In Step S210, when it is judged that it is the timing which indicates the change pattern by re-change next, the selected screen configuration information of a change pattern which indicates by re-change is generated by RAM70 (Step S211). That is, based on the execution result of the above-mentioned control program, the screen configuration information of a change pattern which was chosen by CPU66 and which indicates by re-change is generated by RAM70.

[0124] The screen configuration information of the picture used as each pattern which constitutes the change pattern by which it is indicated by re-change It is based on the control program mentioned above. by CPU66 for example, 1 / 60 seconds, and the period (frame span) of the fixed interval for every 30-second grade The re-change display of a change pattern can be performed by controlling the picture which it is made to shift by predetermined movement magnitude, and serves as each change pattern in the head position of screen configuration information about the picture used as the change pattern which has the same identification information to generate one by one in predetermined sequence.

[0125] Furthermore, since the fluctuation velocity of a change pattern is controllable by adjusting a frame span, the head position of read-out of screen configuration information, etc., in a background image, it is also possible to smooth the re-change display of a change pattern and to aim at fusion for a background image and a change pattern according to the tale developed.

[0126] In addition, it is possible to also make ROM68 display that the configuration of this change pattern changes with time during a re-change display by making two or more image data used as a different configuration memorize, reading from CPU66 at any time, and transmitting to display 32 about the same change pattern.

[0127] Subsequently, based on Steps S201-S203 and the screen configuration information generated in S205, S207, and S211, each image data corresponding to the above-mentioned screen configuration information is read from ROM68 by CPU66. Then, after considering as the image data displayed on display 32, it is

transmitted and displayed on display 32 by the priority as which it is displayed in the above-mentioned screen configuration information, and the information about a position etc. (Step S212).

[0128] Processing of Steps S201-S212 mentioned above is repeatedly performed until it is judged that a halt indication of all the patterns that belong to two or more groups in Step S213 mentioned later was given completely. thus, by repeating and performing processing, it scrolls in a predetermined mode — as — indicating the pattern by change **** — a temporary halt display — it can be displayed that it can indicate by halt and a background image and a character picture also carry out predetermined operation

[0129] After performing processing of Step S212, it judges whether a halt indication of all the patterns belonging to two or more groups was given (Step S213). When it judges that a halt indication of all the patterns belonging to two or more groups is not given, processing is returned to Step S201. On the other hand, when it judges that a halt indication of all the patterns was given, this sub routine is ended.

[0130] In the adjustable display game manipulation routine mentioned above, especially how to combine the change display of a change pattern, a temporary halt display, and a halt display can give an example as shown in the following (1) – (3) as these examples, for example, although it is not limited and various gestalten can be taken.

(1) After a change indication of the change pattern which consists of three groups is given, a halt indication of the becoming change pattern is given one by one from two groups, then a temporary halt indication of the change pattern become from one group is given, and a re-change indication of the change pattern by which it was indicated by temporary halt is given after that. In this case, a halt indication of the change pattern which consists of two groups may be given simultaneously.

(2) After a change indication of the change pattern which consists of three groups is given, a temporary halt indication of the change pattern of all groups is given simultaneously, then a re-change indication of all the change patterns is given all at once. In this case, in case a temporary halt indication of the change pattern of all groups is given, a temporary halt indication of these change patterns may be given one by one.

(3) After a change indication of the change pattern which consists of three groups is given, a halt indication of the becoming change pattern is given from one group, then a temporary halt indication of the change pattern become from two groups is given simultaneously, and a re-change indication of the change pattern by which it was indicated by temporary halt is given simultaneously after that. In this case, a temporary halt display and a re-change display may be performed one by one.

[0131] In addition, when Step S209 mentioned above is performed, as for the sound which the effect of the binaural sound outputted by the loudspeaker makes, it is desirable that it is the sound which generates a virtual source. for example, in displaying each of the pattern belonging to three groups on a longitudinal direction

(1) when a re-change indication of the change pattern arranged on left-hand side is given When a re-change indication of the change pattern which was made to generate a virtual source on the left-hand side of game equipment, and has been arranged in the center of (2) by outputting the sound which generates a virtual source from a loudspeaker is given When a re-change indication of the change pattern which the virtual source was generated in the center of game equipment, and has been arranged on the right-hand side of (3) is given a virtual source is generated from the right-hand side of game equipment — making — (4), in re-changing all change patterns A virtual source is generated from the right-hand side, the left-hand side, and the center of game equipment, a virtual source is generated from the direction which combined according to each case when indicated by re-change with the gestalt with which (5) above-mentioned (1) – (3) combined, and things are desirable. Thus, a game can be enjoyed over a long time, without not continuing gazing at the change pattern by which it was indicated by halt, consequently sensing tiredness, since a game person can expect the change pattern by which it is indicated by re-change by setting up a virtual source. Moreover, since a game can be performed observing the change pattern by which it is indicated by re-change Big impression of the moment that a re-change indication of two or more change patterns in which it was thought that 1 ** became a halt display is given can be obtained. When the degree of expectation about the whereabouts of a game and the degree of excitement can be raised and a game changes into a great success state, a game person's feeling of fullness and feeling of achievement can be raised, and fast improvement in interest can be aimed at.

[0132] Moreover, for example, the sound which generates a virtual source moves to right-hand side or left-hand side, and it is made audible from a center, or the sound which the effect of the above-mentioned binaural sound makes may move so that the sound which generates a virtual source may move to this side and it may be made audible from the front. thus, since presence can be increased more by moving a virtual source, a game is received — being the further — admiration and excitement can be given excitedly

[0133] Drawing 10 (a) – (c) and drawing 11 (a) – (c) is drawing showing an example of the screen picture concerning this invention typically. In addition, drawing 10 (a) – (c) and drawing 11 (a) – (c) shows an example of the screen picture displayed on display 32 in the adjustable display game.

[0134] screen picture **** shown in drawing 10 (a) – (c) — the tale developed The tale by which two or more apertures are developed in the building prepared in the shape of a grid in the screen picture which is the tale that my ton of the pig which is a salaried worker works busily, and is shown in drawing 11 (a) – (c) is set to the battlefield. It is the tale that the ton my tank unit putting up the flag of a pig and the tank unit of the enemy putting up the flag of the pig which grew the mustache fight.

[0135] In addition, in drawing 10 (a) – (c), my ton of the pig displayed near the number surrounded with a circle currently displayed on the screen and this number

is a change pattern. Thus, the method of making display in one the number which is identification information, and a character, and making it into a change pattern is one of the effective production methods which can give impact and an unexpected feeling, without not making a game person memorize the unnatural odd sense of incongruity of the above-mentioned change pattern and the above-mentioned production picture by uniting a change pattern and a production picture, but making the interest over a game decline. In the explanation about drawing 10, the number attached to the head only also makes my ton of "1" my ton of "1", for example.

[0136] Moreover, in drawing 10 (a) – (c), after a change indication of 3 sets of change patterns is given perpendicularly, while being indicated by halt in the state of alignment, the matrix of the pattern which consists of three lines and three trains is formed by displaying three patterns for each class. And combination predetermined in three patterns by which it was indicated by halt in the central line "7" – "7" – It shifts to the state where a pachinko game becomes advantageous to a game person noting that an adjustable display game wins great success, when it agrees in "7."

[0137] First, drawing 10 is explained. The screen picture shown in drawing 10 (a) is a screen picture displayed when a change pattern carries out a temporary halt in an adjustable display game. Namely, in the aperture of a left-hand side train, my ton of "6", my ton of "7", and my ton of "8" have turned to outside sequentially from the upper aperture, and the same is said of the train of a central aperture, and the train of a right-hand side aperture, and it sets in the train of a central aperture. My ton of "6", my ton of "7", and my ton of "8" have turned to outside sequentially from the upper aperture, and my ton of "5", my ton of "6", and my ton of "7" have turned to outside sequentially from the upper aperture in the train of a right-hand side aperture. Therefore, in this drawing 10 (a), a halt indication of my ton of "7" who turned [middle / of a central aperture / the middle of a left-hand side aperture and] to outside is given, it is in the reach state and a temporary halt indication of my ton of "6" who turned to outside in the middle of a right-hand side aperture is given.

[0138] Although illustration is not carried out, before the screen picture of this drawing 10 (a) is displayed, in the aperture of a ton my business-affairs building, moreover, my ton of the salaried worker who is a change pattern If it is indicated by change so that it may move busily toward the aperture under the upper shell of an aperture, for example, it moves so that my ton of "8" may disappear the aperture of the screen bottom Production which brews a noisy atmosphere which it is indicated by change so that my ton of "5" may appear from on a screen, and hears the voice of my ton who is a salaried worker, a surrounding coworker's voice, etc. from the loudspeaker 46 of pachinko game equipment 10, for example is performed.

[0139] It is made to consider as if my ton of the salaried worker of the expression which the adjustable display game carried out dejectedly in the state where it was indicated by temporary halt was displayed as a screen picture, the adjustable display game separated to the game person and the state was decided, as shown in drawing

10 (a).

[0140] And before indicating the change pattern which was shown in drawing 10 (a) and by which it was indicated by temporary halt by re-change, from a loudspeaker 46, the sound which notifies of the change pattern which indicates by re-change is outputted by the sound which the effect of a binaural sound makes. For example, the voice to which of my ton's of a salaried worker's coworker shouts, "It became busy!", or the bell of a telephone sounds as "Lynn Lynn" is outputted by the sound which the effect of a binaural sound makes.

[0141] At this time, the cry of my ton's coworker and the bell of a telephone are the sound which the effect of the above-mentioned binaural sound makes from a loudspeaker 46, and they are outputted so that it may be audible from near a game person's right.

[0142] Next, as shown in drawing 10 (b), a re-change indication of the change pattern displayed on the aperture of the right-hand side which was carrying out a temporary halt begins to be given. That is, the picture which begin to work busily, or it is surprised at the bell of a telephone, and my ton of the salaried worker displayed on the train of a right-hand side aperture begins to commit with being invited to a coworker's cry busily confusedly is displayed. My ton of the salaried worker displayed on the train of the aperture of the right-hand side by which it is indicated by re-change at this time With my ton of the salaried worker who moves, goes by expression which was surprised toward the bottom of the upper shell of an aperture, and is displayed on the train of a left-hand side aperture In my ton of the salaried worker displayed on the train of a central aperture, it is watching with the halt display of my ton of the salaried worker displayed on the train of a right-hand side aperture by expression called carrying-out-what kana.

[0143] In addition, if a re-change indication of the change pattern which it could be continued by outputting while a re-change indication of the above-mentioned change pattern which carried out [sound / which produces the above-mentioned binaural sound] a temporary halt was given, and carried out a temporary halt begins to be given, you may stop an output.

[0144] then, my ton of the salaried worker who moves a right-hand side aperture downward from a top, and is moving busily as shown in drawing 10 (c) -- ** -- if it stops moving, all the lines of middle will serve as my ton of "7" Namely, combination predetermined in the combination of the pattern of the change pattern by which it was indicated by halt "7" - "7" - It agrees in "7", and will be in a great success state, and laughing my ton's picture will be displayed.

[0145] thus, while being able to recognize certainly the change pattern in which a re-change indication of the game person is given by not only a visual sense but the acoustic sense by using the sound which the effect of a binaural sound makes, feeling whose game person itself is in a ton my business-affairs building can memorize, and it can be immersed in presence in which the coworker who is actually my ton on the right-hand side of a game person exists, or the telephone is installed

Moreover, while the voice for which it cries suddenly about its ears, "It became busy!" can be heard or a game person is surprised that the sound "Lynn Lynn" was emitted as [approach / by being able to know beforehand that a re-change indication of the right-hand side change pattern will be given, and seeing a right-hand side change pattern actually begin to move after that / the great success state etc. / as for a game person] — admiration and excitement can be memorized excitedly and it can carry out skilled / of the fun of this game

[0146] Next, drawing 11 is explained. The screen picture shown in drawing 11 (a) is a screen picture displayed when a change pattern carries out a temporary halt in an adjustable display game. That is, in the identification information picture field of the screen picture bottom, a temporary halt indication of the left-hand side change pattern is given among three change patterns in the pattern which shows "4", and a halt indication of the change pattern of a center and right-hand side is given in the pattern which shows "7." Moreover, in the production picture field on it, the picture which shows a battlefield is displayed as a background image, and the ton my tank unit of an ally and an enemy's tank unit are developing fighting on this battlefield.

[0147] Moreover, although illustration is not carried out, before the screen picture of this drawing 11 (a) is displayed, in the discernment picture field, a change indication of all of the three change patterns is given, the ton my tank unit and an enemy's tank unit are developing fighting in the production picture field, and the state where a shell cannot be made to hit the mark mutually continues. At this time, production which brews the atmosphere in which the battlefield became it tense is performed by outputting sound effects, such as music which heightens a feeling of tension in fighting, engine sound of a tank, sound which discharges a shell, and sound which a shell reaches, from the loudspeaker 46 of pachinko game equipment 10, for example.

[0148] Moreover, it is made to consider as if the screen picture which stopped discharging a shell in the state where a temporary halt indication of the adjustable display game was given after the ton my tank unit and an enemy's tank unit have defined the aim mutually was displayed, the adjustable display game separated to the game person and it decided in the state, as shown in drawing 11 (a).

[0149] And before indicating the change pattern which was shown in drawing 11 (a) and by which it was indicated by temporary halt by re-change, from a loudspeaker 46, the sound which notifies of the change pattern which indicates by re-change is outputted by the sound which the effect of a binaural sound makes. For example, the shell which the ton my tank unit discharged hits an enemy's tank, and the exploding sound is outputted by the sound which the effect of a binaural sound makes.

[0150] Next, as shown in drawing 11 (b), in an identification information picture field, a re-change indication of the change pattern which was carrying out a temporary halt on the left-hand side is given. At this time, in the production picture field, an enemy's tank currently displayed on left-hand side explodes, and the screen picture in which it was wrapped in smoke and the figure hid is displayed.

[0151] And as shown in drawing 11 (c), it explodes, and after an enemy's tank

wrapped in smoke disappears, the tank belonging to the ton my tank unit putting up the flag of a pig appears. At this time, it is indicated by halt in the pattern which shows "7", and the combination of the pattern of the change pattern by which it was indicated by halt agrees in combination "7"- "7"- "7 predetermined", and the change pattern by which it was indicated by re-change at the screen lower left will be in a great success state.

[0152] In the example shown in drawing 10 and drawing 11, although only one of three change patterns was in the state which carried out a temporary halt, by this invention, two change patterns may carry out a temporary halt, all change patterns may carry out a temporary halt, and after the combination of the change pattern which carried out a temporary halt being in a great success state, a re-change indication of all the change patterns may be given further. Moreover, in case a re-change indication of the change pattern which carried out [above-mentioned] a temporary halt is given, it is not necessary to necessarily output the sound which produces the effect of the binaural sound which notifies of being indicated by re-change each time.

[0153] although notified of a re-change indication of which change pattern is given in the example shown in drawing 10 and drawing 11 with the sound which the effect which is a binaural sound makes, you may notify of a re-change indication of which change pattern is given in this invention by generating a virtual source or moving the virtual source which made it generate The cry of my ton's [of the salaried worker "it became busy"] coworker uttered before a re-change indication of the change pattern which carried out a temporary halt by the right-hand side aperture is given in the example shown in drawing 10 to for example, the sound which generates a virtual source It is outputted so that this virtual source may occur in a game person's right ear side, and the footstep for which of my ton's of a salaried worker's coworker presses from right-hand side is the sound which generates a virtual source, and you may make it output after that, so that this virtual source may approach near a game person's left ear.

[0154] moreover -- for example, the sound to which the shell which the ton my tank unit discharged flies in the example shown in drawing 11 is the sound which the effect of the above-mentioned binaural sound makes from a loudspeaker 46, and the sound in which it is outputted so that it may fly to left-hand side from a game person's transverse plane and right-hand side, and an enemy's tank explodes is the sound which the effect of the above-mentioned binaural sound makes from a loudspeaker 46, and it is outputted so that it is audible from near the left-hand side which is a game person thus, it can be immersed in presence while being able to recognize certainly the change pattern in which a re-change indication of the game person is given by not only a visual sense but the acoustic sense by using the sound which the effect of a binaural sound makes, as if a ton my tank unit exists in a game person's transverse plane and right-hand side and the tank which is an enemy existed in left-hand side Moreover, while a game person is suddenly surprised that

the sound "Dawn" was emitted close to his ears Since a right-hand side change pattern can be seen able to know beforehand that a re-change indication of the left-hand side change pattern will be given, and actually begin to move after that with the sound that a shell flies to left-hand side from a game person's transverse plane and right-hand side, as [approach / the great success state etc. / as for a game person] — admiration and excitement can be memorized excitedly and it can carry out skilled / of the fun of this game

[0155] as mentioned above, before a re-change indication of two or more change patterns which once carried out a temporary halt is given according to the above-mentioned gestalt of operation, it can notify [whether a re-change indication of which change pattern is given, and] using unique and new methods — sound notifies to a game person that it is audible from the direction where the change pattern to which it is indicated [sound / which the effect of a binaural sound makes] by re-change, for example has been arranged — Therefore, a game person can enjoy a game over a long time, without not continuing gazing at the change pattern by which it was indicated by halt, consequently sensing tiredness, since the change pattern by which it is indicated by re-change can be expected.

[0156] Moreover, since a game can be performed observing the change pattern by which it is indicated by re-change Big impression of the moment that a re-change indication of two or more change patterns in which it was thought that 1 ** became a halt display is given can be obtained. When the degree of expectation about the whereabouts of a game and the degree of excitement can be raised and a game changes into a great success state, a game person's feeling of fullness and feeling of achievement can be raised, and fast improvement in interest can be aimed at.

[0157] Although the case where ROM68 and RAM70 of pachinko game equipment 10 memorized the program which controls a pachinko game, the program for detecting the game sphere shown in drawing 8 , the program which performs the adjustable display game shown in drawing 9 in the example mentioned above was shown It is good also as a server and a terminal having data used by the programs mentioned above when it considered as the composition which can perform a pachinko game when an operator operates the terminal connected to the server possible [communication], or these programs.

[0158] Thus, when it considers as the composition which consists of a server and a terminal, the server memorizes beforehand the program which controls a pachinko game, the program for detecting the game sphere shown in drawing 8 , the program which performs the adjustable display game shown in drawing 9 , and transmits these programs to a terminal to predetermined timing.

[0159] On the other hand, a terminal once memorizes these transmitted programs and advances a pachinko game by beginning to read the program which memorized suitably and performing it. Moreover, it is good also as performing the program which controls a pachinko game, the program for detecting the game sphere shown in drawing 8 , the program which performs the adjustable display game shown in

drawing 9 by the server side, and transmitting to a terminal by making into a control signal or control information the instruction generated according to the execution result. In this case, a terminal chooses the picture for performing a pachinko game according to the control signal and control information which were transmitted, generates it, or displays the picture on a display.

[0160] Drawing 12 is the front view showing an example of the terminal when considering as composition which was mentioned above.

[0161] In the example shown in drawing 12 , a terminal 100 is a general-purpose personal computer, and a game person's alter operation is inputted from the input unit 102 connected to the terminal 100, for example, a keyboard. Moreover, the control section 130 of a terminal 100 consists of CPU108, ROM110, and RAM112 grade which are mentioned later, and the program which controls a pachinko game in this control section 130, and the program which controls an adjustable display game are performed.

[0162] This control section 130 also has the communication interface circuit 120 (not shown), and a control section 130 performs communication with the server later mentioned through a communication interface circuit 120, based on the control signal or control information transmitted from a server, a program, and data, a pachinko game is controlled or it controls an adjustable display game. Moreover, the loudspeaker 118 is connected to the control section 130, and it is possible to output the sound which the effect of a binaural sound makes by the loudspeaker 118.

[0163] Furthermore, the game machine picture which imitated pachinko game equipment as shown in the display 116 connected to the terminal 100 at drawing 12 is displayed, and a pachinko game is performed on this game machine picture. The display 132 by which the adjustable display game mentioned above on this game machine picture is performed is displayed as a picture. In this display 132, the picture of the pattern which is the identification information which was mentioned above is displayed.

[0164] Moreover, when the sub routine shown in drawing 9 and a sub routine as shown in drawing 19 are performed in a control section 130 so that it may mention later, before a re-change indication of the change pattern which carried out a temporary halt is given in a display 132, it will notify of whether a re-change indication of which change pattern is given beforehand with the sound which the effect of the binaural sound outputted from a loudspeaker 118 makes.

[0165] Drawing 13 is the front view showing other examples of a terminal. In addition, the same sign was given to the component shown in drawing 12 , and the corresponding component. The example of drawing 13 shows the carried type terminal 140, and a game person's alter operation is inputted from the input unit 102 prepared in the terminal 140, for example, a switch. Moreover, the control section 130 (not shown) is formed in the interior of a terminal 140, it consists of CPU108, ROM110, and RAM112 grade which are mentioned later, and the program which controls a pachinko game and an adjustable display game in this control section 130

is performed. Moreover, the loudspeaker 118 is connected to the control section 130, and it is possible to output the sound which the effect of a binaural sound makes by the loudspeaker 118.

[0166] Moreover, this control section 130 also has a communication interface circuit 120 (not shown), and a control section 130 performs communication with the server later mentioned through a communication interface circuit 120, and it controls a pachinko game and an adjustable display game based on the control signal or control information transmitted from a server, a program, and data.

[0167] Furthermore, as the display 116 prepared in the upper surface of a terminal 140 consists of a liquid crystal display panel and it was shown in drawing 15, the game machine picture which imitated pachinko game equipment is displayed, and a pachinko game is performed on this game machine picture. The display 132 by which the adjustable display game mentioned above on this game machine picture is performed is displayed as a picture. In this display 132, the picture of the pattern which is the identification information which was mentioned above is displayed.

[0168] Moreover, when the sub routine shown in drawing 9 and a sub routine as shown in drawing 19 are performed in a control section 130, before a re-change indication of the change pattern which carried out a temporary halt is given in a display 132, it will notify of whether a re-change indication of which change pattern is given beforehand with the sound which the effect of the binaural sound outputted from a loudspeaker 118 makes.

[0169] In the terminal 100 shown in drawing 12 as mentioned above, display 116 serves as another object and consists of control sections 130, various kinds of control signal or control information which were transmitted from the server, such as a display-control signal, are supplied to the control section 130 of a terminal 100, and a control section 130 supplies the status signal which generated and generated the status signal based on the supplied control signal or control information to display 116.

[0170] On the other hand, the terminal 140 shown in drawing 13 is constituted united with display 116, and the control signal or control information which were transmitted from the server, such as a display-control signal, are supplied to the control section 130 of a terminal 140, a control section 130 generates a status signal based on the supplied control signal or control information, and it supplies the generated status signal to display 116. The example shown below is applicable even if it is the composition which was united even if it was the composition that the control section and display of a terminal became another object.

[0171] Drawing 14 is the block diagram showing the terminal 100 mentioned above or the composition of 140 (the terminal unit for pachinko games is called hereafter). Moreover, drawing 15 is the block diagram showing the composition of the server 80 which is connected with this terminal unit for pachinko games through a communication line, and supplies various control signals or control information, and data to the terminal unit for pachinko games. In addition, in the terminal unit for

pachinko games shown in drawing 14 , the same sign was given to the component shown in drawing 12 , and the corresponding component.

[0172] The input unit 102, for example, the keyboard, and switch for inputting operation of a game person are connected to the interface circuitry 104 of the terminal unit 100 for pachinko games, and the interface circuitry 104 is connected to the input/output bus 106. It is made through this input/output bus 106 as [input / output and / a data signal or an address signal / by the central-process circuit (CPU is called hereafter) 108]. ROM (read-only memory)110 and RAM (random access memory)112 are connected to the input/output bus 106. ROM110 and RAM112 memorize a program which is mentioned later, the image data for displaying on display 116, the sound data outputted by the loudspeaker 118. Moreover, the above-mentioned sound data contain the sound data made to generate the sound which the effect of a binaural sound makes.

[0173] Moreover, the interface-circuitry group 114 is also connected to the input/output bus 106. Display 116 and the loudspeaker 118 are connected to the interface-circuitry group 114, and the interface-circuitry group 114 supplies a status signal and a correspondence number to each of display 116 and a loudspeaker 118 according to the result of data processing in CPU108.

[0174] Furthermore, the communication interface circuit 120 is also connected to the input/output bus 106. This communication interface circuit 120 is for carrying out communication with the server 80 later mentioned through communication lines, such as a dial-up line network and a Local Area Network (LAN).

[0175] On the other hand, as shown in drawing 15 , shell composition of the server 80 is carried out with a hard disk drive 88, CPU82, ROM84 and RAM86, and the communication interface circuit 90. A hard disk drive 88 memorizes the program for receiving the program for carrying out communication with the terminal unit for pachinko games, and the information emitted from the terminal unit for pachinko games, the program which controls a pachinko game, and the program which controls an adjustable display game. A communication interface circuit 90 is for carrying out the terminal unit 100 for pachinko games mentioned above through communication lines, such as a dial-up line network and a Local Area Network (LAN), and communication with 140.

[0176] When it considers as composition which was mentioned above, the game machine picture which imitated the pachinko game equipment shown in drawing 12 or drawing 13 is displayed on the display 116 of the terminal unit 100 for pachinko games, and the picture which shows the display 132 for performing the game face of a board, a hold lamp, an ornament lamp, and an adjustable display game and the equipment of the display 152 grade for usually displaying a pattern, and the picture which shows a game sphere are displayed on display 116. In the display 132 for performing this adjustable display game, when an adjustable display game is performed, the picture of the pattern which is identification information is displayed.

[0177] Hereafter, the sub routine by which executive operation is carried out in each

of the terminal unit for pachinko games and a server is shown in drawing 16 – drawing 20 . The terminal unit 100 for pachinko games or 140, and a server 80 shall be started beforehand below, and shall carry out regular operation. Moreover, the variable used in CPU108 and CPU82 which were mentioned above shall be initialized by the predetermined value. Furthermore, each of equipments, such as a winning-a-prize mouth, a starting mouth, and a sphere passage detector, or a game sphere shall be displayed as a picture in display 116. In addition, about sound other than the sound which notifies of a re-change indication of the change pattern which carried out a temporary halt being given, although explanation is omitted, suppose that BGM, a sound effect, voice, etc. are outputted suitably according to a game situation.

[0178] Drawing 16 and drawing 17 are predetermined timing when the terminal unit 100 for pachinko games or 140 is started. A server 80 supplies various kinds of programs memorized by the hard disk drive 88 grade of a server 80 to the terminal unit 100 for pachinko games, or 140. When performing the program supplied in the terminal unit 100 for pachinko games, or 140, it is the flow chart which shows the terminal unit 100 for pachinko games or 140, and the sub routine by which executive operation is carried out in each of a server 80.

[0179] Drawing 16 is a sub routine performed in the terminal unit 100 for pachinko games, or 140, and is called and performed from a main routine to predetermined timing. In addition, this main routine shall include beforehand the program which is needed in case communication with the servers 80, such as a program for judging whether communication with a server 80 is possible, is carried out.

[0180] In case first a pachinko game is gone on in the program for performing a pachinko game, and the terminal unit for pachinko games from a server 80, required image data and the sound data made to generate the sound outputted by the loudspeaker 118 are downloaded (Step S31).

[0181] Subsequently, when a game person operates an input unit 102, a pachinko game is started and executive operation of the game program is carried out (Step S32). It is for displaying pictures of the game machine picture, the background image, and the change pattern which required image data imitated pachinko game equipment and, such as a picture and a character picture, on display 116 including the game program by which this game program controls a pachinko game, and the program for performing the adjustable display game shown in drawing 7 mentioned above. Furthermore, the sound data made to generate the sound outputted by the loudspeaker 118 are sound data used as BGM, a sound effect, voice, etc., and contain the sound data made to generate the sound which the effect of a binaural sound makes.

[0182] Moreover, when a game program is performed in the terminal unit 100 for pachinko games, or 140, it detects that the game person operated the input unit 102. When it detects that the game person operated the input unit 102, as mentioned above, the display 132 which the game machine picture which imitated pachinko game equipment is displayed on the terminal unit 100 for pachinko games or the

display 116 of 140, and displays an adjustable display game on this game machine picture is also displayed. Furthermore, when a game person operates an input unit 102 that a game sphere should be discharged, the picture of the game sphere which can be checked by looking so that a game sphere may move in a game face-of-a-board top is displayed on a game machine picture.

[0183] Next, it judges whether the game sphere went into the winning-a-prize mouth (Step S33). This winning-a-prize mouth is the general winning-a-prize mouth 50 shown in drawing 6 mentioned above, 54a-54d, and a picture portion specially corresponding to the winning-a-prize mouths 56a-56d.

[0184] When it judges that the game sphere went into the winning-a-prize mouth, processing which pays out the game sphere of the number according to the kind of winning-a-prize mouth is performed (Step S34). In addition, processing of this step S34 is good in the terminal unit 100 for pachinko games, or 140 also as memorizing the number of game spheres to RAM112 also as displaying the number of game spheres on one position of the display 116.

[0185] Next, it judges whether the game sphere went into the starting mouth (Step S35). This starting is a picture portion corresponding to the starting mouth 44 shown in drawing 6 mentioned above.

[0186] In this step S35, when it judges that the game sphere went into the starting mouth, the sub routine shown in drawing 9 mentioned above and the same adjustable display game manipulation routine are called and performed (Step S36). In addition, when an adjustable display game manipulation routine is performed, in the display 132 shown in drawing 12 and drawing 13 , the picture and character picture of a background image or a change pattern are displayed.

[0187] Furthermore, before a re-change indication of the change pattern which once carried out a temporary halt in the display 132 is given by performing the adjustable display game manipulation routine shown in drawing 9 , it will notify of a re-change indication of which change pattern is given beforehand with the sound which the effect of a binaural sound makes.

[0188] Furthermore, it judges whether the game sphere passed the sphere passage detector (Step S37). This sphere passage detector is a picture portion corresponding to the sphere passage detectors 55a and 55b shown in drawing 6 mentioned above. In this step S37, when a sphere passage detector is judged that the game sphere passed, processing which usually indicates the pattern by change in display 52 is performed (Step S38).

[0189] In addition, as mentioned above, when are indicated by change and it becomes [at which the pattern usually stopped] a predetermined pattern, the picture which can be checked by looking so that the movable pieces 58a and 58b may be driven and the starting mouth 44 may be in an open state is displayed, and processing which a game sphere tends to go into the starting mouth 44, and becomes to it is performed.

[0190] Next, it judges whether the game was completed or not (Step S39). Judgment

whether the game was completed or not judges that the game ended them when only the time of detecting having operated the input unit 102 and the number with which the game sphere was defined beforehand judged having been discharged by the game face of a board, in order that a game person may end a game. When it judges that the game is not completed, processing is returned to Step S32 mentioned above.

[0191] On the other hand, when it judges that the game was completed, the game result which shows the number of the discharged game spheres, the number of the repaid game spheres, etc., and the game end information which shows that the game was completed are transmitted to a server 80 (Step S40), and this sub routine is ended.

[0192] Drawing 17 is a flow chart which shows the sub routine performed in a server 80 corresponding to the terminal side manipulation routine performed in the terminal unit 100 for pachinko games shown in drawing 16 , or 140.

[0193] It judges whether first, the terminal unit 100 for pachinko games or 140 is started, and it is in the state which can communicate (Step S51). When it is judged that the terminal unit 100 for pachinko games or 140 is not started, processing is returned to Step S51.

[0194] On the other hand, when it judges that the terminal unit 100 for pachinko games or 140 is started, various kinds of program and various kinds of image data, sound data, etc. are transmitted to the terminal unit 100 for pachinko games, or 140 (Step S52). Processing of this step S52 is equivalent to processing of Step S31 of drawing 16 mentioned above.

[0195] As mentioned above, it is for displaying the picture of the game machine picture, the background image, and the change pattern which various kinds of image data imitated pachinko game equipment and, a character picture, etc. on display 116 including the game program by which the program transmitted to the terminal unit 100 for pachinko games or 140 in Step S52 controls a pachinko game, and the program for performing the adjustable display game shown in drawing 9 mentioned above. Furthermore, the sound data made to generate the sound outputted by the loudspeaker 118 are sound data used as BGM, a sound effect, voice, etc., and contain the sound data made to generate the sound which the effect of a binaural sound makes.

[0196] Next, it judges whether the information which shows the purport which the game result and the game ended was transmitted from the terminal unit 100 for pachinko games, or 140 (Step S53). This step S53 is equivalent to Step S40 of drawing 16 mentioned above. In Step S53, when it judges that neither a game result nor game end information is transmitted from the terminal unit 100 for pachinko games, or 140, processing is returned to Step S53. In addition, in the terminal unit 100 for pachinko games, or 140, while processing of Steps S32-S39 shown in drawing 16 is performed, processing of Step S53 which set server 80 and was mentioned above is performed repeatedly.

[0197] On the other hand, when it is judged in Step S53 that a game result and game end information were transmitted from the terminal unit 100 for pachinko games or 140, a game result and game end information are received (Step S54), and this sub routine is ended.

[0198] Since the program and various kinds of image data for performing a pachinko game are always transmitted from a server 80 before a game is started in the terminal unit 100 for pachinko games, or 140 when it considers as composition which was mentioned above, when a program and image data are updated in a server 80, the game person can always enjoy the newest game.

[0199] Moreover, when it considers as such composition, before a re-change indication of the change pattern which once carried out a temporary halt is given in the display 132 displayed on the terminal unit 100 for pachinko games which is a terminal, or the display 116 of 140, the program which notifies of whether a re-change indication of which change pattern is given beforehand with the sound which the effect of a binaural sound makes is stored in the hard disk drive 88 grade of a server 80.

[0200] before a re-change indication of two or more change patterns which once carried out a temporary halt by considering as such composition is given, it can notify [whether a re-change indication of which change pattern is given, and] using unique and new methods — sound notifies to a game person that it is audible from the direction where the change pattern to which it is indicated [sound / which the effect of a binaural sound makes] by re-change, for example has been arranged — Therefore, a game person can enjoy a game over a long time, without not continuing gazing at the change pattern by which it was indicated by halt, consequently sensing tiredness, since the change pattern by which it is indicated by re-change can be expected.

[0201] Moreover, since a game can be performed observing the change pattern by which it is indicated by re-change Big impression of the moment that a re-change indication of two or more change patterns in which it was thought that 1 ** became a halt display is given can be obtained. When the degree of expectation about the whereabouts of a game and the degree of excitement can be raised and a game changes into a great success state, a game person's feeling of fullness and feeling of achievement can be raised, and fast improvement in interest can be aimed at.

[0202] Next, the terminal unit 100 for pachinko games or ROM110 of 140 is made to memorize beforehand the program for controlling a pachinko game, and the program for performing an adjustable display game. When it considers as the composition which transmits suitably the image data and sound data of the various kinds which are alike, therefore are needed with which a pachinko game advances from a server 80, the terminal unit 100 for pachinko games or 140, and the sub routine performed in a server 80 are shown in drawing 18 , drawing 19 , and drawing 20 .

[0203] Drawing 18 is a sub routine performed in the terminal unit 100 for pachinko games, or 140, in the following explanation, to predetermined timing, shall be read

from ROM110 and shall be performed from the main routine. In addition, this main routine shall include beforehand the program which is needed in case communication with the servers 80, such as a program for judging whether communication with a server 80 is possible, is carried out. Moreover, except for the flow chart and Step S31 which were shown in drawing 16, the flow chart shown in drawing 18 was the same, and gave the same sign to the step which carries out same processing.

[0204] First, a pachinko game is started by operation of a game person and executive operation of the game program is carried out (Step S32). This game program is for displaying a picture, a character picture, etc. of a game machine picture, a background image, or a change pattern which imitated pachinko game equipment on display 116 including the game program which controls a pachinko game, and the program for performing the adjustable display game mentioned later, or outputting sound by the loudspeaker 118.

[0205] Moreover, when a game program is performed in the terminal unit 100 for pachinko games, or 140, it detects that the game person operated the input unit 102. When it detects that the game person operated the input unit 102, as mentioned above, the display 132 which the game machine picture which imitated pachinko game equipment is displayed on the terminal unit 100 for pachinko games or the display 116 of 140, and displays an adjustable display game on this game machine picture is also displayed.

[0206] Furthermore, when a game person operates an input unit 102 that a game sphere should be discharged, the picture of the game sphere which can be checked by looking so that a game sphere may move in a game face-of-a-board top is displayed on a game machine picture.

[0207] Next, it judges whether the game sphere went into the winning-a-prize mouth (Step S33). This winning-a-prize mouth is the general winning-a-prize mouth 50 shown in drawing 6 mentioned above, 54a-54d, and a picture portion specially corresponding to the winning-a-prize mouths 56a-56d.

[0208] When it judges that the game sphere went into the winning-a-prize mouth, processing which pays out the game sphere of the number according to the kind of winning-a-prize mouth is performed (Step S34). In addition, processing of this step S34 is good in the terminal unit 100 for pachinko games, or 140 also as memorizing the number of game spheres to RAM112 also as displaying the number of game spheres on the position of somewhere in display 116.

[0209] Next, it judges whether the game sphere went into the starting mouth (Step S35). This starting mouth is a picture portion corresponding to the starting mouth 44 shown in drawing 6 mentioned above.

[0210] In this step S35, when it judges that the game sphere went into the starting mouth, the adjustable display game manipulation routine mentioned later is called and performed (Step S36). In addition, when an adjustable display game manipulation routine is performed in this case, before a re-change indication of the change pattern which once carried out a temporary halt is given in the display 132 shown in

drawing 14 and drawing 15 , it will notify of a re-change indication of which change pattern is given beforehand with the sound which the effect of a binaural sound makes.

[0211] Furthermore, it judges whether the game sphere passed the sphere passage detector (Step S37). This sphere passage detector is a picture portion corresponding to the sphere passage detectors 55a and 55b shown in drawing 6 mentioned above.

[0212] In this step S37, when a sphere passage detector is judged that the game sphere passed, processing which usually indicates the pattern by change in display 52 is performed (Step S38). In addition, as mentioned above, when are indicated by change and it becomes [at which the pattern usually stopped] a predetermined pattern, the movable pieces 58a and 58b are driven, and the picture which can check the starting mouth 44 by looking so that it may be in an open state is displayed, and a game sphere tends to go into the starting mouth 44, and it is made to become it.

[0213] Next, it judges whether the game was completed or not (Step S39). Judgment whether the game was completed or not judges that the game ended them when only the time of detecting that the game person operated the input unit 102 that a game should be ended and the number with which the game sphere was defined beforehand judged having been discharged by the game face of a board. When it judges that the game is not completed, processing is returned to Step S32 mentioned above.

[0214] On the other hand, when it judges that the game was completed, the game result which shows the number of the discharged game spheres, the number of the repaid game spheres, etc., and the game end information which shows that the game was completed are transmitted to a server 80 (Step S40), and this sub routine is ended.

[0215] Drawing 19 is a flow chart which shows the sub routine which processes the adjustable display game called and performed in Step S36 mentioned above. In addition, the same sign was given to the step which carries out the same processing as the step of the flow chart shown in drawing 9 to the flow chart shown in drawing 19 .

[0216] The information which shows the purport by which first this sub routine was called and the execution start of the adjustable display game was carried out is transmitted to a server 80 (Step S61).

[0217] Next, the sound data made to generate the image data used as the picture of the change pattern which is the identification information picture needed in an adjustable display game, a background image, and a character picture, BGM, a sound effect, and voice, a control program, etc. are received from a server 80 (Step S62).

[0218] Subsequently, internal lottery processing by data processing of the terminal unit 100 for pachinko games or CPU108 of 140 is performed (Step S200). It is the processing set beforehand the combination of the pattern when this internal lottery

processing indicating by halt all the patterns that belong to two or more groups by which it is indicated by change, and deciding a pattern, and CPU 108 carries out processing with the change display of a pattern, and a halt display so that it may mention later, and a halt indication of the pattern may be given in a display 132 in the combination of the pattern defined by internal lottery processing.

[0219] Moreover, by the above-mentioned internal lottery processing, CPU108 performs processing which determines whether indicate the change pattern by re-change, and when it is determined that a change pattern will indicate by re-change, it carries out the processing which determines further a temporary halt of which change pattern is carried out.

[0220] Subsequently, while the above-mentioned control program is performed and a background image is chosen by CPU108 based on the result, the screen configuration information of a background image is generated (Step S201), while a character picture is chosen, the screen configuration information of a character picture is generated (Step S202), and the screen configuration information of the change pattern which is identification information is generated (Step S203).

[0221] Next, when it judges whether it is the timing which indicates the change pattern by halt (Step 204) and judges that it is the timing which indicates the change pattern by halt, a change pattern picture is chosen by CPU108 in the mode which indicates the change pattern by halt, and the screen configuration information of this change pattern picture is generated by RAM70 by it (Step S205).

[0222] Next, when it judges whether it is the timing which carries out a temporary halt of the change pattern (Step S206) and it is judged that it is the timing which carries out a temporary halt of the change pattern next, the screen configuration information of the selected pattern which carries out a temporary halt is generated by RAM70 (Step 207).

[0223] When it is judged on the other hand that it is not the timing which carries out a temporary halt of the change pattern in Step S206, Or it judges whether it is the timing which notifies of the change pattern which performed processing of Step S207, and by which a case, next a re-change indication are given (Step S208). When it is judged that it is the timing which notifies of the change pattern by which it is indicated by re-change, the sound data made to generate the sound which the effect of the binaural sound which notifies of the change pattern by which it is indicated by re-change makes are chosen (Step S209). Consequently, the sound based on the above-mentioned sound data will be outputted by the loudspeaker 118.

[0224] When it is judged that it is not the timing which notifies of the change pattern by which it is indicated by re-change in Step S208, Or it judges whether when processing of Step S209 is performed next, it is the timing which indicates the change pattern by re-change (Step S210). When a change pattern is judged to be the timing which indicates by re-change next, the selected screen configuration information of a change pattern which indicates by re-change is generated by RAM70 (Step S211).

[0225] Subsequently, based on the generated screen configuration information, required image data is read among the above-mentioned image data which received in S62, and after considering as the image data displayed on a display 132, it is displayed on a display (Step S212).

[0226] Processing of Steps S201-S212 mentioned above is repeatedly performed until it is judged that a halt indication of all the patterns that belong to two or more groups in Step S213 mentioned later was given. Thus, by repeating and performing processing, it can be displayed that the pattern can be indicated by change so that it may scroll in a predetermined mode, and a character picture also carries out predetermined operation.

[0227] After performing processing of Step S212, it judges whether a halt indication of all the patterns belonging to two or more groups was given (Step S213). When it judges that a halt indication of all the patterns belonging to two or more groups is not given completely, processing is returned to Step S201. On the other hand, when it judges that a halt indication of all the patterns was given, information is transmitted to a server 80 as a result of the information which shows the purport which the adjustable display game ended, and an adjustable display game (Step S64), and this sub routine is ended.

[0228] Drawing 20 is a flow chart which shows the sub routine performed in a server 80 corresponding to the terminal side manipulation routine performed in the terminal unit 100 for *** pachinko games shown in drawing 19 , or 140. The server 80 shall be started beforehand, and the sub routine shown in drawing 20 shall be called and performed from the main routine currently performed beforehand.

[0229] It judges whether the information which first shows the purport by which the adjustable display game was started in the terminal unit 100 for pachinko games or 140 was received (Step S71). When it judges that the information which shows the purport by which the adjustable display game was started is not received, this sub routine is ended immediately.

[0230] When it judges that the information which, on the other hand, shows the purport by which the adjustable display game was started was received, the picture of the change pattern which is the identification information picture needed in an adjustable display game, a background image, the sound data made to generate the image data used as a character picture and BGM, a sound effect, and voice, a control program, etc. are transmitted to the terminal unit 100 for pachinko games, or 140 (Step S72). This step S72 corresponds to processing of Step S62 shown in drawing 19 mentioned above.

[0231] Next, it judges whether the information which shows the purport which ended the adjustable display game was received (Step S75). Processing of this step S75 is processing corresponding to processing of Step S64 of drawing 19 mentioned above. In Step S75, when it judges that the information which shows the purport which ended the adjustable display game is not received, processing is returned to Step S75. When it judges that the information which, on the other hand, shows the

purport which ended the adjustable display game was received, this sub routine is ended.

[0232] In the display 132 displayed on the terminal unit 100 for pachinko games which is a terminal, or the display 116 of 140 when it considered as the composition mentioned above Before a re-change indication of the change pattern which once carried out a temporary halt is given, with the sound which the effect of a binaural sound makes The picture of the change pattern which is an identification information picture as notified of a re-change indication of which change pattern is given beforehand, The image data used as a background image and a character picture, the sound data made to generate the sound which the effect of a binaural sound makes, And a server 80 transmits a control program etc. to the terminal unit 100 for pachinko games, or 140, and a server 80 controls the terminal unit 100 for pachinko games which is a terminal, or 140.

[0233] before a re-change indication of two or more change patterns which once carried out a temporary halt by considering as such composition is given, it can notify [whether a re-change indication of which change pattern is given, and] using unique and new methods -- sound notifies to a game person that it is audible from the direction where the change pattern to which it is indicated [sound / which the effect of a binaural sound makes] by re-change, for example has been arranged -- Therefore, a game person can enjoy a game over a long time, without not continuing gazing at the change pattern by which it was indicated by halt, consequently sensing tiredness, since the change pattern by which it is indicated by re-change can be expected.

[0234] Moreover, since a game can be performed observing the change pattern by which it is indicated by re-change Big impression of the moment that a re-change indication of two or more change patterns in which it was thought that 1 ** became a halt display is given can be obtained. When the degree of expectation about the whereabouts of a game and the degree of excitement can be raised and a game changes into a great success state, a game person's feeling of fullness and feeling of achievement can be raised, and fast improvement in interest can be aimed at.

[0235] Moreover, when **, such as a picture, a background image, a character picture, its method of presentation, sound data, etc. of a change pattern, are updated in a server 80, image data with the terminal unit 100 for pachinko games or 140, sound data, etc. a control program, etc. will be transmitted from a server 80. [always new] Therefore, the game person can enjoy the newest production screen in the terminal unit 100 for pachinko games, or 140.

[0236] In this invention, as explained using drawing 16 and drawing 17 , a server 80 supplies various kinds of programs memorized by the storage of the hard disk drive 88 grade of a server 80 to the terminal unit 100 for pachinko games, or 140. As it is possible to consider as the composition which performs the program supplied in the terminal unit 100 for pachinko games or 140 and being explained using drawing 18 - drawing 20 The terminal unit 100 for pachinko games or ROM110 of 140 is made to

memorize beforehand the program for controlling a pachinko game, and the program for performing an adjustable display game. Although it is possible to consider as the composition which transmits suitably only various kinds of image data which is needed as a pachinko game advances, and sound data from a server 80 Only the game program which controls a pachinko game by this invention, and the program for performing an adjustable display game are transmitted from a server 80. furthermore, image data and sound data It is also possible to consider as the composition which reads suitably the image data which is beforehand memorized by the terminal unit 100 for pachinko games or ROM110 of 140, and is needed for it, and sound data from ROM110.

[0237] In the display 132 displayed on the terminal unit 100 for pachinko games which is a terminal, or the display 116 of 140 when it considered as such composition Before a re-change indication of the change pattern which once carried out a temporary halt is given, with the sound which the effect of a binaural sound makes The program which outputs the sound which notifies of a re-change indication of which change pattern is given beforehand is memorized by the storage which the hard disk drive 88 grade of a server 80 can computer read. moreover, when an adjustable display game is started Since the control program for performing an adjustable display game is always downloaded, while a game person can enjoy the newest adjustable display game Although it is necessary to download neither about image data nor sound data therefore, in the terminal unit 100 for pachinko games, or the display 116 of 140, a production picture can be displayed promptly, and the sound according to the game situation can be promptly outputted from the loudspeaker 118.

[0238] Furthermore, it is also possible to consider as the composition a server 80 remembers programs, such as a program for controlling a pachinko game by this invention and a program for performing an adjustable display game, to be, and the terminal unit 100 for pachinko games or ROM110 of 140 remembers the image data which a pachinko game and an adjustable display game need to be. At this time, a server 80 performs advance of a pachinko game, the terminal unit 100 for pachinko games or 140 will choose a picture according to the control signal or control information transmitted according to advance of a pachinko game performed in the server 80, and the selected picture will be displayed on display 116.

[0239] When it considers as such composition, before a re-change indication of the change pattern which once carried out a temporary halt is given in the display 132 displayed on the terminal unit 100 for pachinko games which is a terminal, or the display 116 of 140, a server 80 controls the terminal unit 100 for pachinko games, or 140 by the sound which the effect of a binaural sound makes to output the sound which notifies of whether a re-change indication of which change pattern is given beforehand.

[0240] before a re-change indication of two or more change patterns which once carried out a temporary halt by considering as composition which was mentioned

above is given, it can notify [whether a re-change indication of which change pattern is given, and] using unique and new methods -- sound notifies to a game person that it is audible from the direction where the change pattern to which it is indicated [sound / which the effect of a binaural sound makes] by re-change, for example has been arranged -- Therefore, a game person can enjoy a game over a long time, without not continuing gazing at the change pattern by which it was indicated by halt, consequently sensing tiredness, since the change pattern by which it is indicated by re-change can be expected.

[0241] Moreover, since a game can be performed observing the change pattern by which it is indicated by re-change Big impression of the moment that a re-change indication of two or more change patterns in which it was thought that 1 ** became a halt display is given can be obtained. When the degree of expectation about the whereabouts of a game and the degree of excitement can be raised and a game changes into a great success state, a game person's feeling of fullness and feeling of achievement can be raised, and fast improvement in interest can be aimed at.

[0242] In addition, although the example mentioned above showed the case where the picture, background image, and character picture of a change pattern were displayed, only in the display 132 displayed on the picture of the game machine which imitated the pachinko game equipment displayed on display 116, it is good also as displaying the picture, background image, and character picture of a change pattern on the whole surface of display 116.

[0243] Moreover, it can judge whether the game person was provided with the production expression method concerning this invention which was mentioned above etc. by checking that the enjoyableness in a pachinko game is increasing. For example, the economical phenomenon of the store which adopted pachinko game equipment which was mentioned above prospering, and when being carried by the magazine etc., it becomes the phenomenon in which information permeates through media, such as becoming reputation, and will appear.

[0244]

[Effect of the Invention] before a re-change indication of two or more change patterns which once carried out a temporary halt is given according to this invention, it can notify [a re-change indication of which change pattern is given, and] using unique and new methods, such as notifying a game person sound being heard, from the direction where the change pattern to which it is indicated [sound / which the effect of a binaural sound makes] by re-change, for example has been arranged Therefore, a game person can enjoy a game over a long time, without not continuing gazing at the change pattern by which it was indicated by halt, consequently sensing tiredness, since the change pattern by which it is indicated by re-change can be expected.

[0245] Moreover, since a game can be performed observing the change pattern by which it is indicated by re-change Big impression of the moment that a re-change indication of two or more change patterns in which it was thought that 1 ** became

a halt display is given can be obtained. When the degree of expectation about the whereabouts of a game and the degree of excitement can be raised and a game changes into a great success state, a game person's feeling of fullness and feeling of achievement can be raised, and fast improvement in interest can be aimed at.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is explanatory drawing about a virtual source.

[Drawing 2] It is explanatory drawing about a virtual source.

[Drawing 3] It is explanatory drawing about a virtual source.

[Drawing 4] (a) is explanatory drawing about a parametric loudspeaker, (b) is drawing showing typically the frequency spectrum of the nonlinear interaction by the sine wave, and (c) is drawing showing typically the frequency spectrum of the nonlinear interaction by the amplitude modulation wave.

[Drawing 5] It is the front view showing the pachinko game equipment by this invention typically.

[Drawing 6] It is the expansion front view showing typically the game face of a board of the pachinko game equipment by this invention.

[Drawing 7] It is the block diagram showing the control circuit of the pachinko game equipment which is the example of this invention.

[Drawing 8] It is the flow chart which shows the sub routine of processing which detects the game sphere performed in pachinko game equipment.

[Drawing 9] It is the flow chart which shows the sub routine of the adjustable display game processing called and performed in Step S14 of the flow chart shown in drawing 8 .

[Drawing 10] It is drawing showing an example of the screen picture concerning this invention typically.

[Drawing 11] It is drawing showing an example of the screen picture concerning this

invention typically.

[Drawing 12] It is the general-view view showing an example of the terminal for pachinko games.

[Drawing 13] It is the general-view view showing other examples of the terminal for pachinko games.

[Drawing 14] It is the block diagram showing the control circuit of the terminal unit for pachinko games which is the example of this invention.

[Drawing 15] It is the block diagram showing the control circuit of the server which is the example of this invention.

[Drawing 16] It is the flow chart which shows the sub routine performed in the terminal unit 100 for pachinko games which is the example of this invention, or 140.

[Drawing 17] In the server 80 which is the example of this invention, it is the flow chart which shows the sub routine performed.

[Drawing 18] It is the flow chart which shows the sub routine performed in the terminal unit 100 for pachinko games, or 140.

[Drawing 19] It is the flow chart which shows the sub routine which processes the adjustable display game performed in the terminal unit 100 for pachinko games, or 140.

[Drawing 20] In the server 80 which is the example of this invention, it is the flow chart which shows the sub routine performed.

[Description of Notations]

10 Pachinko Game Equipment (Game Machine)

32 Display (Display)

48 (48a, 48b) Loudspeaker

60 Control Circuit

66 CPU (Control Section)

64 Input/output Bus

68 ROM

70 RAM

80 Server

100 Terminal Unit for Pachinko Games (Terminal)

132 Display

140 Terminal Unit for Pachinko Games (Terminal)

201 (201a, 201b) Loudspeaker

500 Parametric Loudspeaker

[Translation done.]

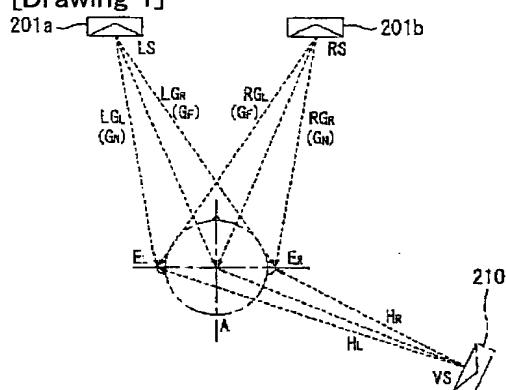
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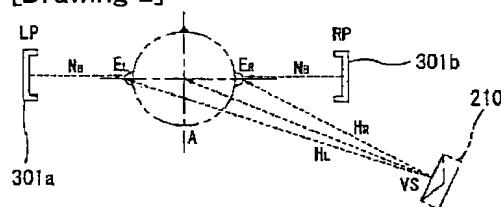
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DRAWINGS

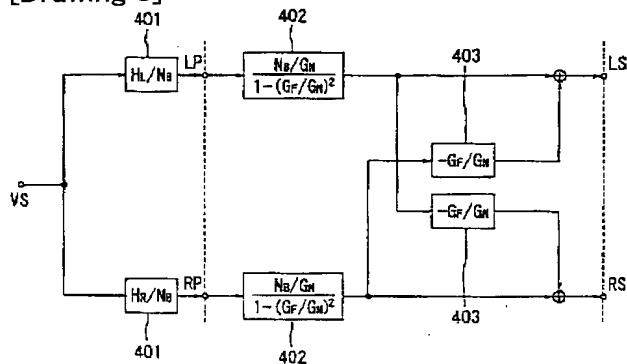
[Drawing 1]



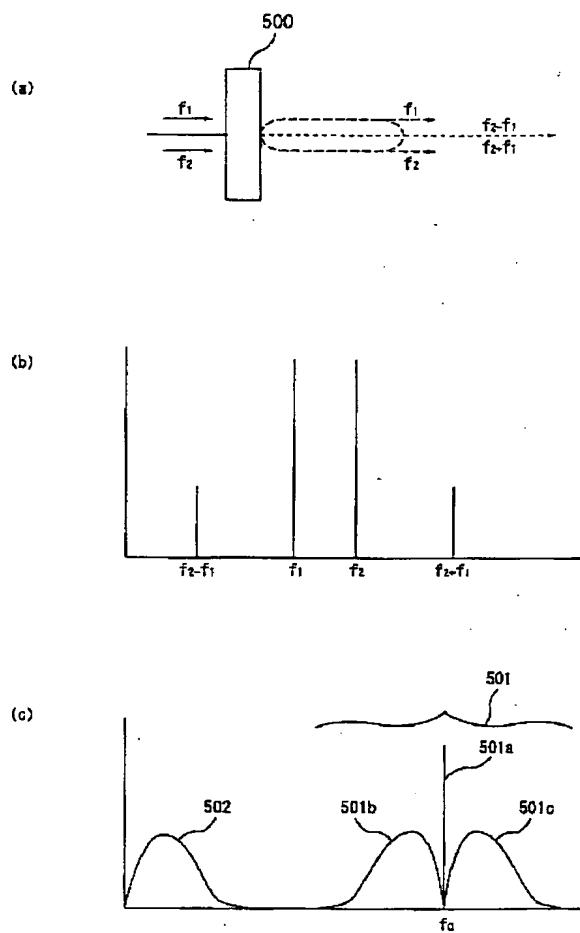
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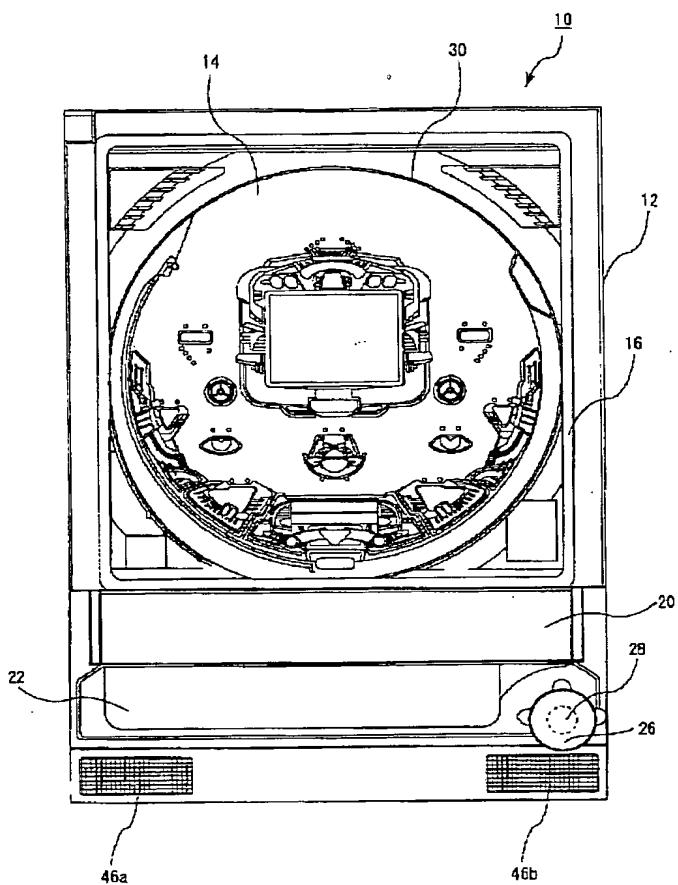
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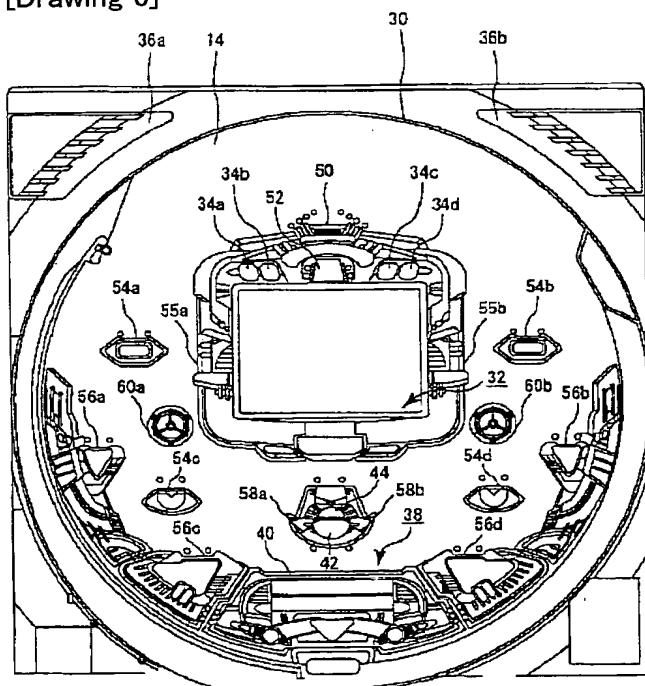
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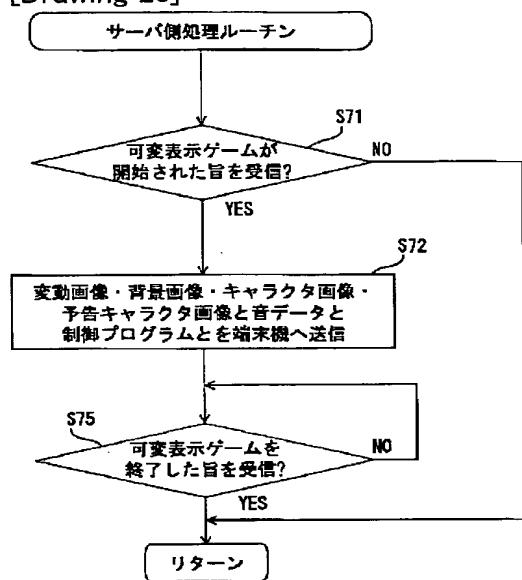
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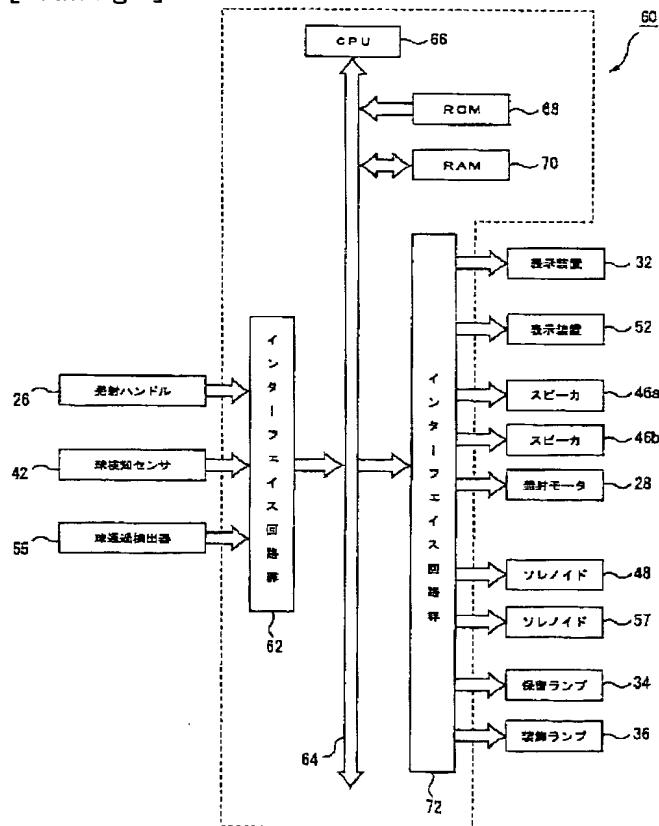
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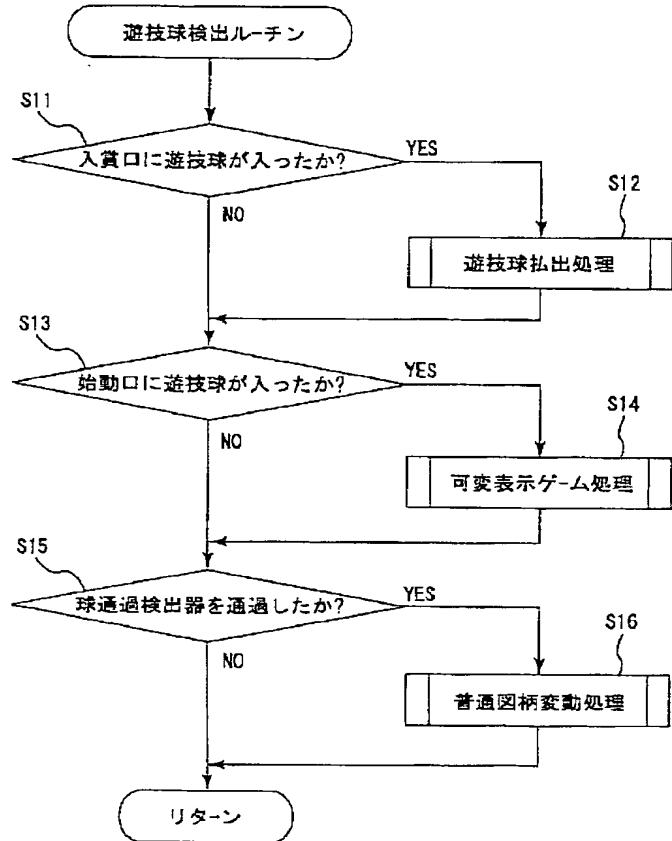
[Drawing 20]



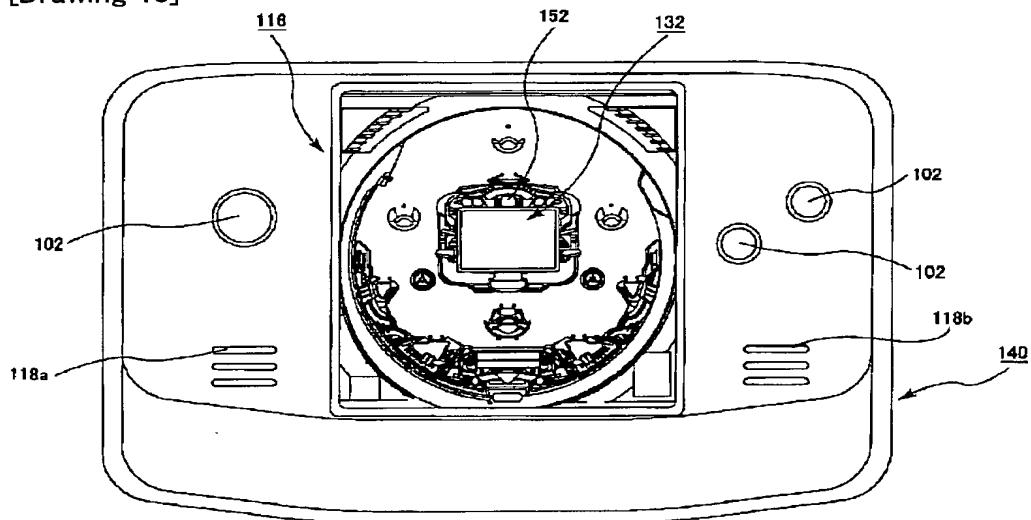
[Drawing 7]



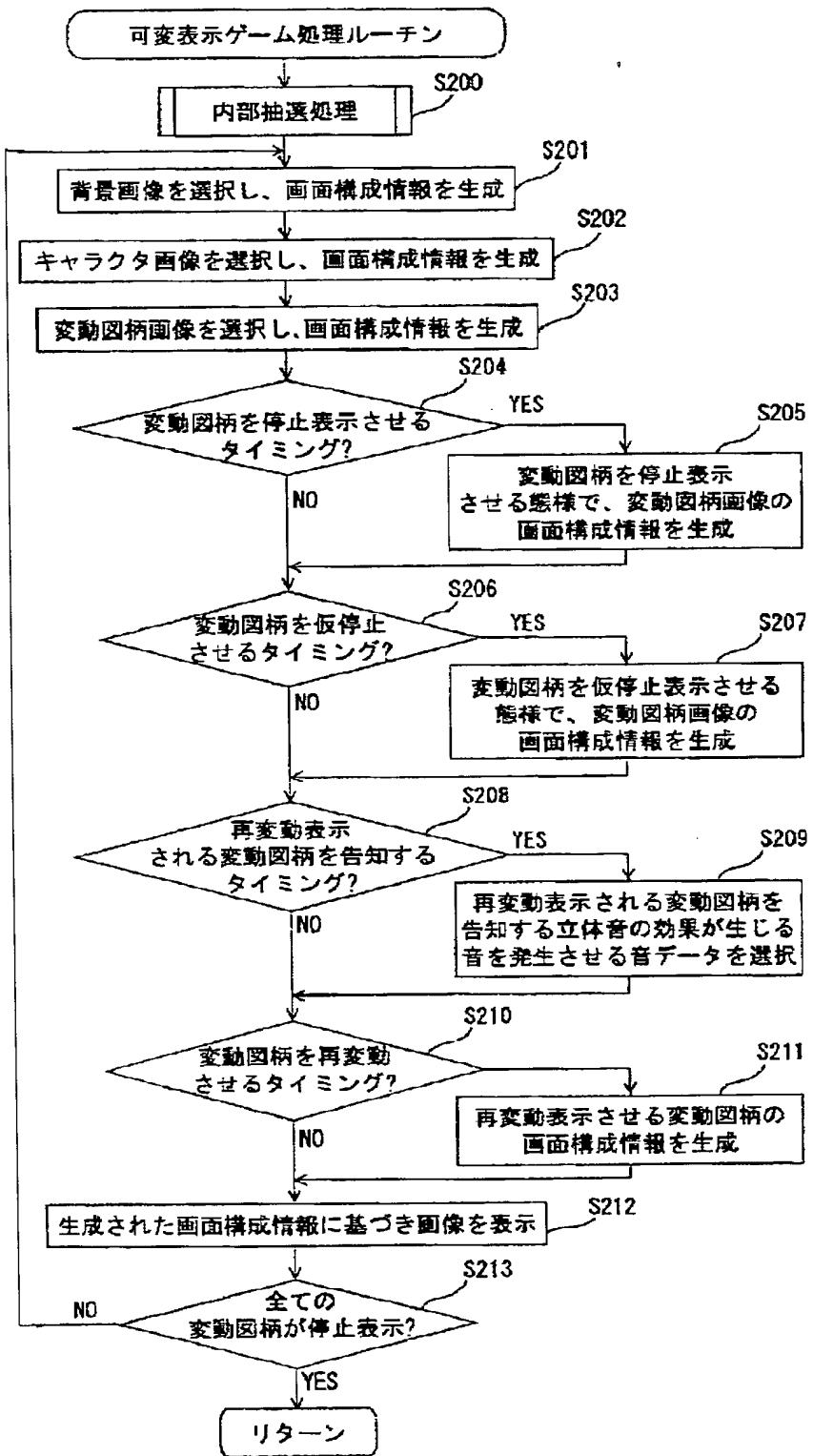
[Drawing 8]



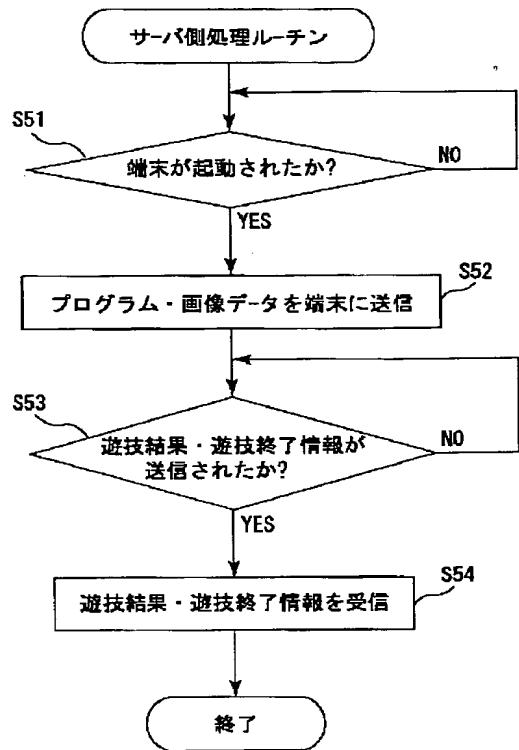
[Drawing 13]



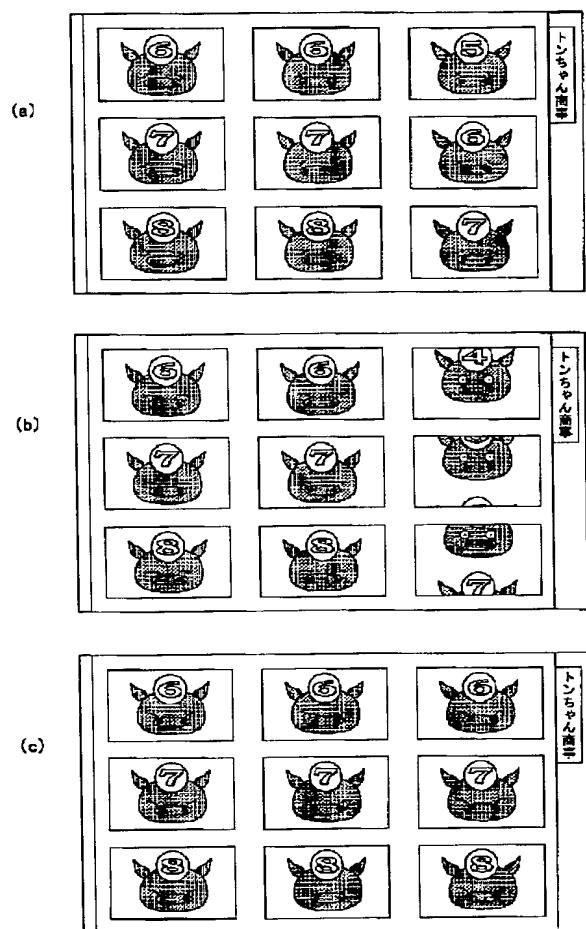
[Drawing 9]



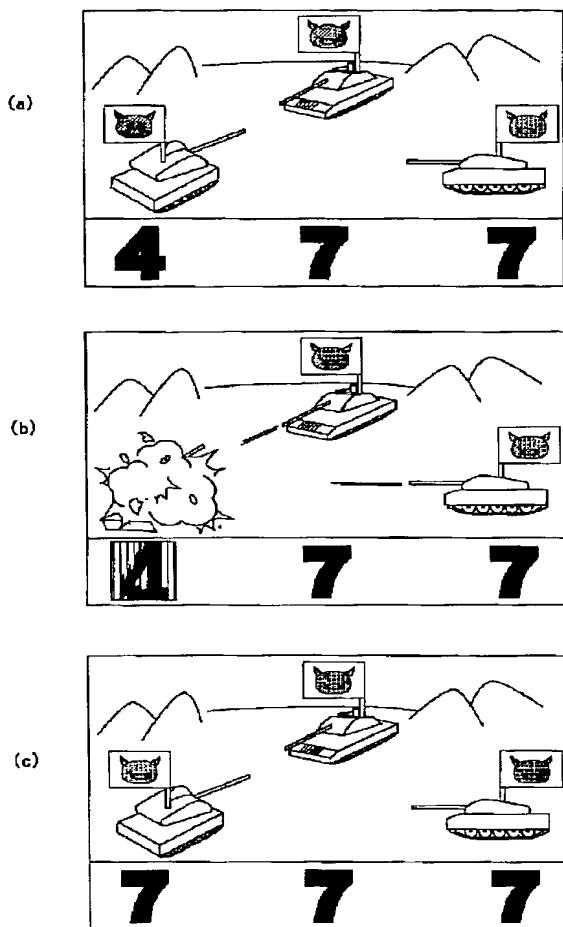
[Drawing 17]



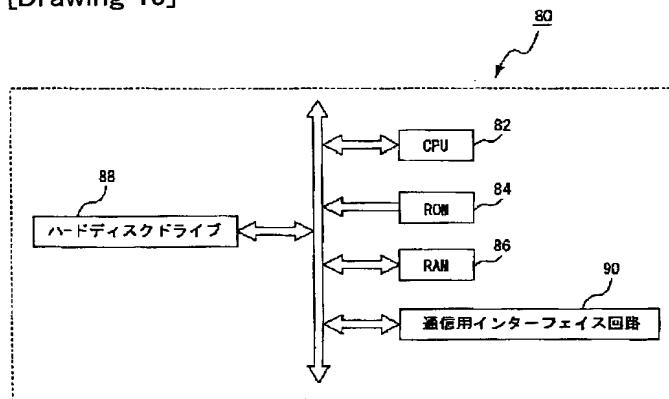
[Drawing 10]



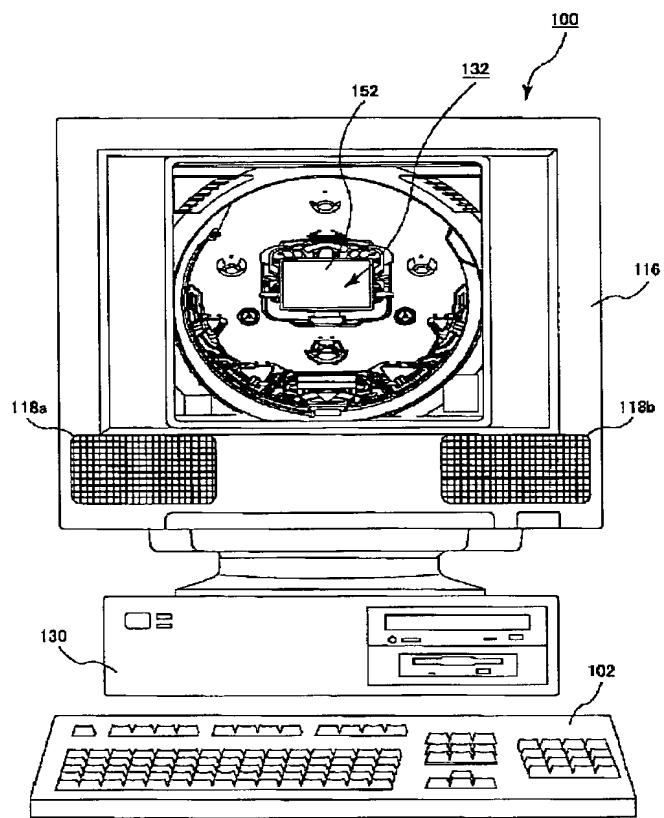
[Drawing 11]



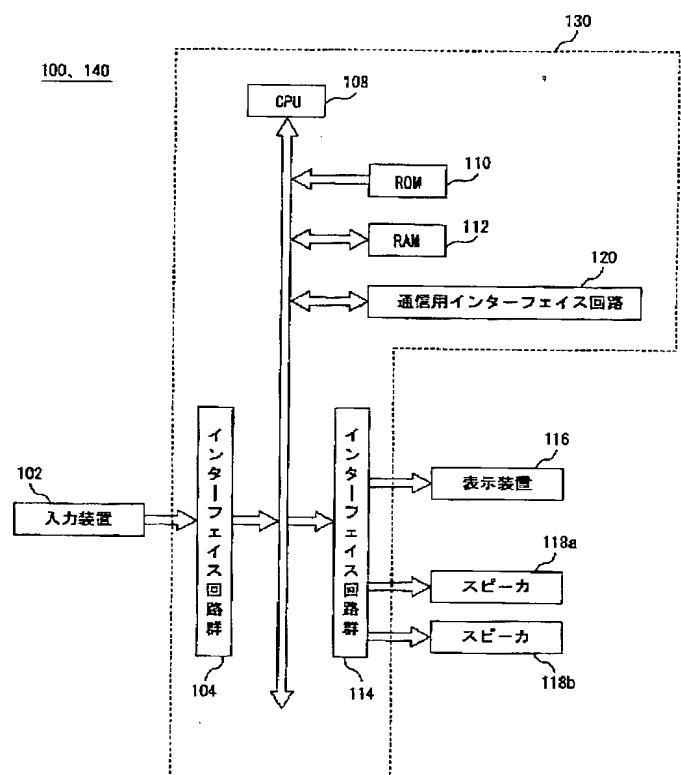
[Drawing 15]



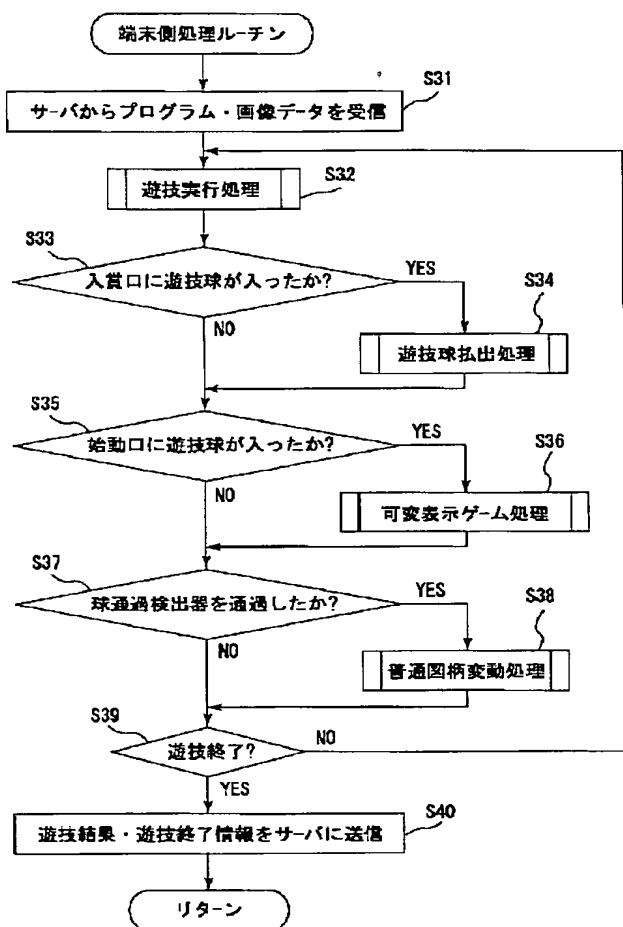
[Drawing 12]



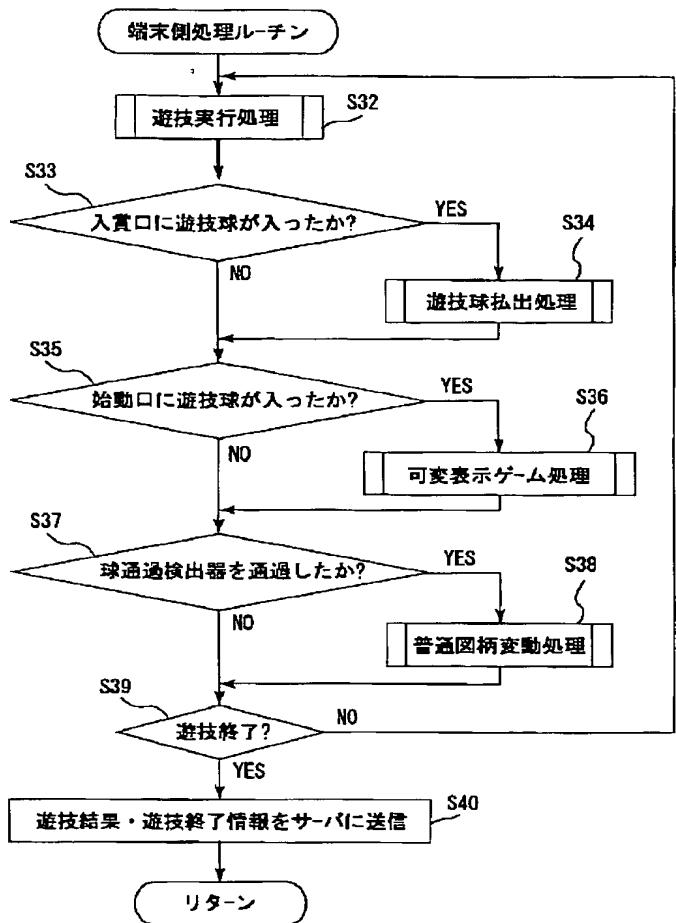
[Drawing 14]



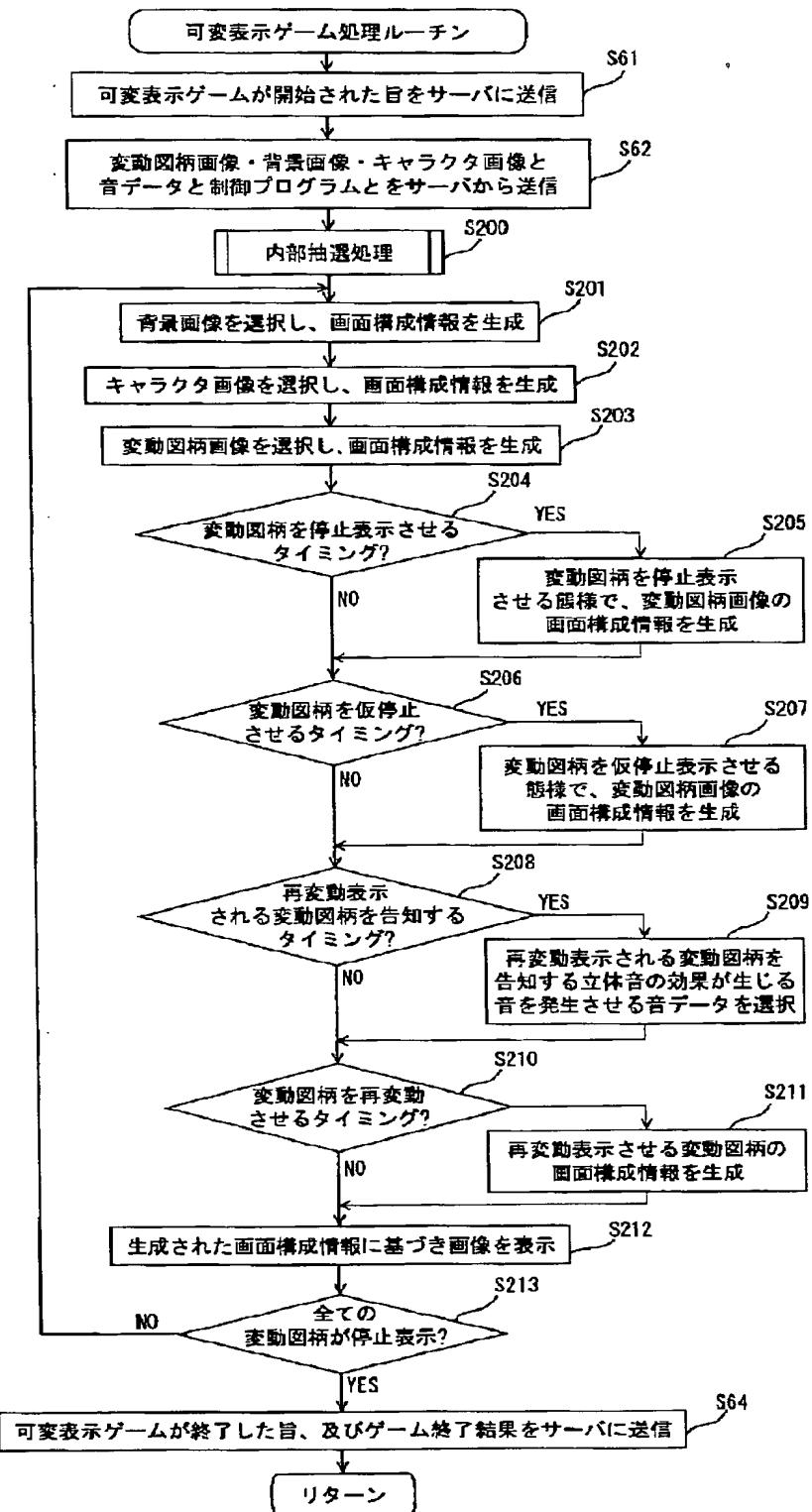
[Drawing 16]



[Drawing 18]



[Drawing 19]



[Translation done.]